
Chapter 1 — Overview of the Meridian 1 Option 11C Compact

Design and architecture

The Meridian 1 Option 11C Compact is a small wall mounted digital PBX system which can be configured as a one or two cabinet system. It can be easily adapted to a small space wherever it is to be installed.

An expansion cabinet can be connected up to approximately 33 ft (10 m) from the main cabinet using an A0632902 10 m (33 ft) multi-mode plastic fiber optic cable.

Note: The A0632902 Plastic Fiber Optic Cable (multi-mode) is the only fiber optic cable supported by the Option 11C Compact system. The maximum distance between the cabinets is 33 cable feet (10 cable meters). Allow approximately 2 ft (0.5 m) of slack at each end of the cable for routing inside the cabinets.

Call processing, serial ports and network traffic are handled by an MC68040 processor located on the CPU card located in the main cabinet.

Easy to install and program

The system is shipped with a Software Daughterboard which is pre-configured with system and a default customer data.

During the first-time installation of the Option 11C Compact system the Software Installation Program is automatically invoked. This is a menu driven program which is used to install the software in the system and make it operational.

Model telephones

There are a wide variety of pre-programmed model telephone layouts from which to choose. Using telephone layouts or templates, technicians can perform a few simple steps at installation to activate multiple telephones.

Administration telephone

A TTY input terminal is not required for programming the Option 11C Compact if the default models for telephones and trunk routes are suitable for the needs of the users. Instead, an administrative telephone can be used to make adjustments to such things as the numbering plan and access codes. The telephone used for the administrative function can be an M2616 or M2008 digital telephone. This phone can also double as a user's working telephone.

Changing or removing pre-programmed data

If the pre-programmed data is not applicable to users at a particular site, the data can be revised on-site with a TTY, or remotely over a modem connection.

Set-Based Administration

Set-Based Administration is a feature that simplifies system installation and administration by enabling a telephone set to perform several administrative and maintenance procedures. Examples such as changing data associated with specific set-related features, or changing Calling Party Name Display on a particular set, can be performed through the Set-Based Administration feature. Refer to the Set-Based Administration user guide for more information.

Multiple-terminal access

The Option 11C Compact system allows a total of three users access to log in, load, and execute overlays simultaneously. For example, if you have a two-cabinet system, users can access the system through the Main or Expansion cabinet at the same time. Three SDI ports are provided on the Main cabinet's Small System Controller (SSC) card, while the expansion cabinet can be accessed through one SDI port on the Expansion cabinet Fiber Receiver card. The advantage of multiple-access is that it allows for more efficient programming and maintenance of the system, especially when cabinets are located apart (such as on different floors in a building).

Meridian Mail Option 11C Compact

The specially designed Option 11C Compact Mail Option 11C Compact comes pre-configured with mailboxes already setup for pre-programmed extensions. If the numbering plan is being modified, then the mailboxes can be changed from any TTY used for Option 11C Compact administration.

Fully featured

Option 11C Compact comes with software for such applications as Automatic Call Distribution, Voice Mail, Automatic Route Selection, Automatic Set Relocation, and Attendant Administration, to name a few.

The Meridian Mail Compact application comes equipped standard with features such as Voice Menus and Automated Attendant.

Unique Option 11C Compact elements

The Option 11C Compact system is characterized by the following unique elements:

- Software Delivery card (PCMCIA) used for software up-issues
- Flash Drives (primary and backup)
- Software Daughterboard
- Security Device which validates keycodes for features assigned to this system

Software Delivery card

The Option 11C Compact system uses a Software Delivery card (PCMCIA card) to upgrade system software and to provide storage for a backup copy of the customer data.

The Software Delivery card is inserted in a specially designed socket in the faceplate of the NTMW01 Small System Controller (SSC) card. Once inserted, software and customer databases can be loaded from the card to the Flash Drive daughter board on the NTMW01 Small System Controller (SSC) card.

Flash Drive

Option 11C Compact software operation and customer data storage is performed by two Flash Drive located on the NTMW01 SSC. The first Flash device, called the Primary Flash Drive, is located on the Software Daughterboard on the NTMW01 SSC. It contains Option 11C Compact system data and the first copy of customer data required to run and load the system.

The second Flash Drive, called the Backup Flash Drive, stores user changeable files such as configuration data and the second copy of the customer database. The Backup Flash Drive is in a physically different location on the NTMW01 SSC so that in the unlikely event of a Primary Flash Drive failure, a backup set of customer data can be retrieved and loaded into the system's active database.

Software Daughterboard

The Software Daughterboard is used as a storage area for system and customer data. It is also used to deliver and load the system software and customer data base in a new system installation.

Security Device

The Security Device, which is shipped with a new Option 11C Compact system, is attached to the NTMW01 SSC card when it is initially installed and is used to identify the system. It allows the activation of features assigned to the system through the validation of a series of keycodes.

System specifications

Each cabinet can house a combination of up to six line cards and trunk cards. A common ratio of users to trunks usually falls between four and six users to each trunk in a moderate to busy work environment. Each line card can interface with up to 24 telephones and each trunk card can interface with up to 4 trunks.

Input Voltage

The Option 11C Compact system accommodates input voltages of 100V - 240V.

Number of Peripheral (PE) slots

There are six PE slots in each cabinet.

Software generic

X27 software.

Conference channels

The NTMW01 SSC provides 32 channels for conferencing. The number of channels can be increased to 48 with the addition of a fiber expansion daughterboard on the NTMW01 SSC (16 channels on the fiber expansion daughterboard).

Intercabinet connection

Cabinets are interconnected with a 10 m (33ft) multi-mode plastic fiber optic cable.

Note: The A0632902 Plastic Fiber Optic Cable (multi-mode) is the only fiber optic cable supported by the Option 11C Compact system. The maximum distance between the cabinets is 33 cable feet (10 cable meters). Allow approximately 2 ft (0.5 m) of slack at each end of the cable for routing inside the cabinets.

Power Failure Transfer Unit (PFTU)

Each NTMW07 Line/Trunk card has a built-in PFTU capable of connecting one trunk on the card to one telephone set on the same card when the commercial power supply to the Option 11C Compact system is interrupted.

Reserve power

Commercial ac power can be maintained during a power outage by using an Uninterruptable Power Supply (UPS) unit. (A UPS, if required, must be obtained from a local supplier.)

Data backup and restore methods

Option 11C Compact provides several methods of backing up customer configured data. These methods can be categorized as either on-site backup, or remote backup over a modem connection.

On-site backup

There are three different types of on-site backup that can be performed using LD 43. Customer data can be backed up from the database in use to:

- the Primary Flash Drive
- the Backup Flash Drive, or
- an external Software Delivery card (PCMCIA)

Remote backup

Remote backup can be performed with LD 143 using the Customer Configuration Backup and Restore (CCBR) feature. The CCBR feature permits the user to backup customer configured data to an external IBM-type PC or a Macintosh computer over a modem connection.

Note: For more information about the remote backup feature, refer to the *Customer Configuration Backup and Restore Guide*.

Both the on-site and remote methods of backup can be performed during normal system operation.

Restoring data

In the event data becomes corrupt or inoperable, backup data can be restored to the main database and primary Flash Drives from either the External PCMCIA card, the backup Flash Drive, or from a computer over a modem connection.

Chapter 2 — Equipment identification

This chapter identifies the major components of the Meridian 1 Option 11C Compact system that are pertinent to installation. Identification codes are given where appropriate.

Cabinets

The NTMW08 Cabinet is used for both main and expansion cabinets.

The Main cabinet houses the NTMW01 Small System Controller (SSC) card and can be connected to an Expansion cabinet to increase the line capacity of the system. Each cabinet provides six Peripheral Equipment (PE) slots.

Cable connectors

Connectors for cables to the cross-connect terminal are located on the faceplate of each peripheral equipment card. The cables are routed down the front of the cards and exit at the bottom rear of the cabinet.

The SDI and Ethernet connectors extend out of the bottom of the card cage in each cabinet. The SDI connector in the main cabinet interfaces three SDI ports using a three-port SDI cable. In the expansion cabinet, the SDI connector interfaces with one SDI port. The Ethernet connector in the main cabinet provides a 10 Mbps Ethernet port.

Cooling

The NTMW08 cabinet is equipped with a cooling fan at the top of the cabinet.

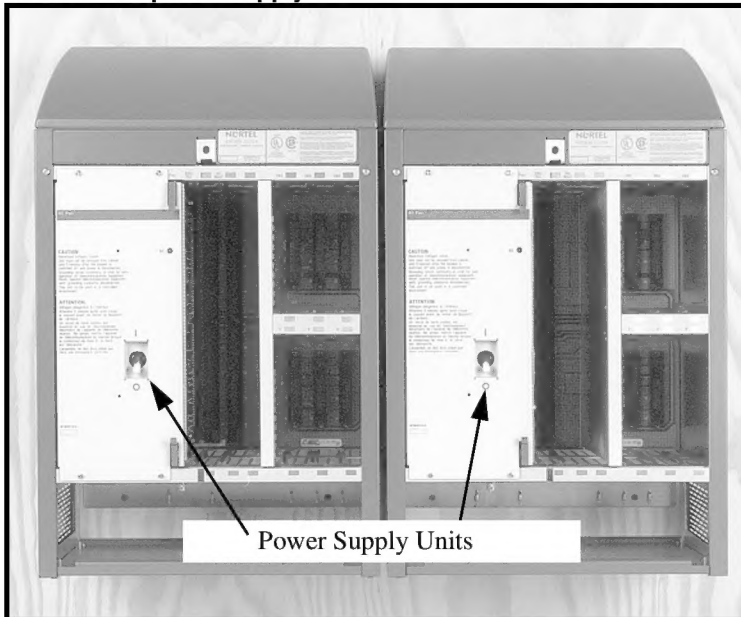
CAUTION

Make sure ventilation at the sides and top of the cabinet is not obstructed.

Power supplies

Each cabinet is powered by an NTMW11 ac power supply unit (see [Figure 1](#)). It is connected to a commercial ac power source, or, if an uninterrupted power supply is a requirement, to an Uninterruptible Power Supply (UPS).

Figure 1
NTMW11 ac power supply



Reserve power

Reserve power can be provided by an Uninterruptible Power Supply (UPS) obtained locally. The UPS provides a continuous AC power supply, even during commercial power outages. The UPS should be installed according to the manufacturer's instructions.

Common equipment circuit cards

The circuit cards described in this section are used in the Option 11C Compact Main cabinet.

NTMW01 Small System Controller (SSC) card

The NTMW01 SSC card includes a Central Processing Unit (CPU) which handles call processing for the system. Also included is an Ethernet controller, storage for system and customer data and system memory. Additionally it provides the following features and functions:

- An MC68LC040 main processor
- An NTDK21 Software Daughterboard interface
- An NTDK22 Fiber Expansion Daughterboard interface
- Two PCMCIA interface slots
- Three SDI ports
- Conferencing
- Digitone Receiver, Tone generation and tone detection functions
- Security Device socket

NTDK21 Software Daughterboard

The system and customer data is stored on the NTDK21 Software Daughterboard attached to the NTMW01 SSC card. This daughterboard is also used as a software delivery card for new Option 11C Compact installations. Additional memory on the NTMW01 SSC card temporary stores and processes automated routines and user-programmed commands. The SSC card also retains a copy of customer files in the event of data loss, in an area called the Backup flash drive.

Security Device

The NTMW01 SSC card is equipped with a socket designed to accommodate the Security Device shipped with each new Option 11C Compact system. The Security Device is normally not attached to the SSC card when it is shipped. It must be attached to the SSC card during initial installation procedures.

PCMCIA interface

The NTMW01 SSC card has a 2-slot PCMCIA interface socket located on its faceplate. The socket can accommodate a Software Delivery card used primarily for software upgrades. It can also be used for creating an external backup copy of the customer data base.

NTDK22 Fiber Expansion Daughterboard

The Main cabinet can be connected to an expansion cabinet by mounting an NTDK22 Fiber Expansion daughterboard on the NTMW01 SSC card. The expansion daughterboard also provides an additional 16 channels of conferencing capabilities.

SDI ports

The NTMW01 SSC card contains three SDI ports used to connect on-site terminals or remote terminals through a modem.

Port 0 is ASCII, 8 bit asynchronous serial port with programmable parity. It supports 300, 600, 1200, 2400, 4800, 9600 and 19200 baud rates which are set using the switches located on the front of the SSC card.

Ports 1 and 2 are set using overlay programs can be configured according to the following parameters:

- baud rate: 300, 600, 1200, 2400, 4800, 9600 and 19200
- parity: none, odd, even
- stop bits: 1, 2
- data bits: 7, 8

The default settings are as shown in [Table 1](#)

Table 1
Default SDI port settings

TTY Port	Baud rate	Data bits	Stop bits	Parity
0	Set by a DIP switch	8	1	None
1	1200 (Note)	8	1	None
2	1200(Note)	8	1	None
Note: The baud rate shown for ports 1 and 2 is the default rate. Ports 1 and 2 can be set in software to a maximum rate of 19200 bps.				

Ethernet Interface

The NTMW01 SSC card is equipped with a 10 Mbps Ethernet port. External connections to the ethernet port is provided by a 15-pin connector located in the main cabinet. This is a standard 15-pin AUI interface for a MAU.

Conferencing

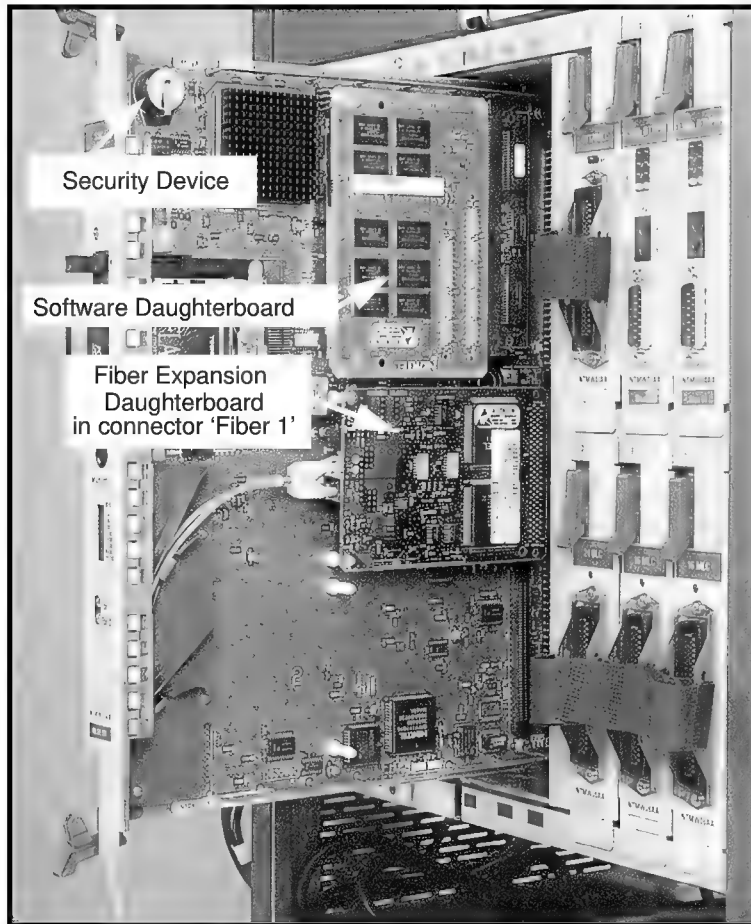
Thirty-two conference channels are provided by the NTMW01 SSC card. Conference capability is increased by 16 channels when a Fiber Expansion daughterboard is added to the SSC card to connect to an expansion cabinet.

Digitone Receiver, tone generation, tone detection functions

The NTMW01 SSC card provides:

- 30 channels of tone transmission
- Tone detection units configurable as:
 - 16 units of DTR/XTD
 - or
 - 8 units of DTR?XTD
 - and
 - 4 units of MFC/MFE/MFK5/MFK6/MFR

Figure 2
Daughterboard and Security Device on the NTMW01 SSC card



ISDN and Digital Trunk Interface

The NTMW04 1.5 M b DTI/PRIcard provides 1.5 Mb ISDN primary rate interface and digital trunk interface capabilities as well as Clock recovery and D-Channel interface. It can be installed in any of the three upper PE slots in the main cabinet.

For more information about ISDN and network equipment, refer to the *Option 11C Compact 1.5 DTI/PRI Administration and Maintenance Guide*,

Peripheral cards

The following Peripheral (PE) cards are used in both the Main and Expansion cabinets.

- NTMW05 24 Port Digital Line Card (24 DLC) is a mini card equipped with 24 voice ports and 8 data ports capable of interfacing with Digital Aries sets and M2250 Digital Console.
- NTMW06 16 Port Message Waiting Analog Line Card (16 MLC) is a mini card equipped with 16 voice ports capable of interfacing with 500- and 2500-type analog telephone sets. It also supports high voltage message waiting lamp indicator.
- NTMW07 4 Port Universal Trunk/4 Port Analog Line Card (4 UT/4 MLC) is a mini card equipped with four analog trunk ports and four analog line ports. The four trunk ports can interface CO, Loop, TIE, Paging or RAN trunks. The four line ports provide the same functionality as the ports on the 16 MLC.

The NTMW07 also provides the Power Failure Transfer Unit (PFTU) function. It allows one trunk on the card to be connected to a telephone set on the same card in the event of a power failure.

Fiber Expansion equipment

Fiber Receiver card

Two-cabinet systems require an NTMW10 Fiber Receiver Card in the Expansion cabinet, and an NTDK22 Fiber Expansion daughterboard on the SSC card in the main cabinet. The connection between the cabinets is made using an A0632902 Plastic Fiber Optic cable which is 10 m (33 ft) long.

Telephones and attendant console

The Option 11C Compact system supports analog telephones as well as many telephones currently used with the Meridian 1 systems.

The following is a list of the telephones supported by Option 11C Compact:

- Analog (500/2500 type) Telephones with or without message waiting lamps
- Meridian Digital Telephones (M2006, M2008, M2216 and M2616)

- M2616 or M2216 Central Answering Position (CAP). This telephone must be equipped with an ACD LCD display in order to function as a CAP telephone.
- Meridian 2250 (TCM) Attendant Console

Cables and wires

Table 2
Cable and wire specifications

Cables and wires	Purpose/description
A0317094 power cord	Connects a system cabinet to a 110 V ac commercial power source Length: 9 ft 10 in. (3000 mm).
A0391685 power cord	Connects a system cabinet to a 220 V ac commercial power source Length: 9 ft 10 in. (3000 mm).
A0632902 Plastic Fiber Optic cable (multi-mode)	Connects a Main and Expansion cabinet by interfacing with an expansion daughterboard and a Fiber Receiver card. Length: 10 m (33 ft)
NTBK48 three-port SDI cable	Connects TTYs, modems, and so on, to the SSC card.
NTAK1118 one-port SDI cable	Connects TTYs, modems, and so on, to Fiber Receiver card supported SDI ports in the expansion cabinet. The cable provides a 9-pin to 25-pin converter connection.
A0601397 F-F DCE to DTE converter, or A0601396 F-M DCE to DTE converter	May be required when connecting SDI ports to TTYs, modems, etc.
NTMW37 1.5 Mb DTI/PRI carrier cable (A0681162)	Connects the 1.5 Mb DTI/PRI card to the Channel Service Unit (CSU). Brings Tx and Rx pairs to a standard 15 pin connector.
NE-A25B 25-pair cable	Connects peripheral equipment cards to cross-connection terminals.
#6 AWG insulated ground wire	Connects a system cabinet to a building ground source.

Table 2
Cable and wire specifications

Cables and wires	Purpose/description
Cross-connecting wire	Makes cross-connections at the cross-connect terminal.

Miscellaneous items

The following is a list of typical miscellaneous items that can be used as part of the system installation. Quantities needed depend on the site and customer requirements.

- modems or Data Communication Equipment (DCE) for remote access to the system
- on-site Data Terminating Equipment (DTE) or teletypewriter (TTY) terminal for accessing the system
- connecting blocks for the cross-connect terminal
- transformers and centralized power supplies for items such as digit displays on telephones
- optional equipment such as music sources, RAN machines, paging equipment and CDR devices
- NTAK92 Off-Premise Protection module for connecting up to four off-premise analog telephones
- additional Modem Eliminator (NULL Modem without hardware handshaking) A0601397 converter may be required to interface the DTE to the system.

Chapter 3 — System and site requirements

Before installing the Meridian 1 Option 11C Compact system, make sure that the site meets all of the following environmental, grounding, power, and cross-connect terminal requirements.

Environmental requirements

The Option 11C Compact system is designed to operate in an office environment that meets the following general conditions:

- The room is clean and well ventilated. Each cabinet dissipates up to 500 Watts of power in the form of heat (1700 BTU [1800 kJ] per hour). Equipment room ventilation must be sufficient to maintain the temperature at an acceptable level.
- The temperature is maintained between 32° and 115°F (0° and 45° C) when the cabinets are mounted side-by-side.
- The humidity is maintained between 5% and 95% non-condensing.
- The location selected to mount the equipment is not subject to constant vibration.
- The equipment is located at least 12 ft (4.5 m) from sources of electrostatic, electromagnetic or radio frequency interference. These sources include such things as:
 - power tools
 - appliances (such as vacuum cleaners)
 - office business machines (such as copying machines)

- all electric motors
- electrical transformers

Earthquake bracing requirements

IMPORTANT

The following earthquake bracing guidelines conform to the requirements for the state of California specifications in the U.S.A.

The guidelines recommend that the cabinets be mounted on a wall using a sheet of 3/4 in. (20 mm) plywood as a backboard. The plywood should be secured to the wall with a minimum of six fasteners. (Refer to [Table 3](#) and [Table 4](#) for a description of appropriate fasteners.)

The following table identifies the maximum allowable wall height in earthquake prone areas for various types of stud wall construction.

Table 3
Minimum wall requirements – stud construction

Wall Studs	Spacing off center	Maximum Height of Wall
2 in. x 4 in. wooden studs	16 in. or 24 in.	10 ft
2 in. x 6 in. wooden studs	16 in. or 24 in.	16 ft
3 5/8 in. 20 gauge metal studs	16 in. or 24 in.	12 ft
3 5/8 in. 18 gauge metal studs	16 in. or 24 in.	16 ft

Table 4
Minimum fastener requirements

Type of wall	Fasteners	
Wooden studs	#10 wood screws	Minimum 1 in. embedment in wood studs
Metal studs	# 14 sheet metal screws	Minimum 1 in. embedment in metal studs
Concrete (2000 PSI)	1/4 in. HILTI KB-II	Minimum 1 1/8 in. embedment
Masonry	1/4 in. Ramset Redhead Dynabolt sleeve anchor	

The mounting bracket for each cabinet should be fastened to the sheet of plywood with all the screws supplied with the bracket.

A detailed procedure for earthquake bracing is included in “Chapter 6 – Bracing cabinets against earthquakes” on page 57.

Grounding requirements

WARNING

Failure to follow grounding recommendations may result in an installation that is:

- unsafe for personnel working on, or using the equipment
- not properly protected from lightning or power transients
- subject to service interruptions

Grounding requirements

Before installing the Option 11C Compact system and applying AC power, measure the impedance of the building ground reference. (An ECOS 1023 POW-R-MATE or similar meter is suitable for this purpose.) If the ground path connected to the Option 11C Compact has an impedance of $5\ \Omega$ or more, better grounding arrangements should be made. Any improvements to the grounding system should be made before the system is installed.

Other grounding requirements are as follows:

- The impedance of the link between the ground post of the system cabinets and the Single Point Ground (SPG) to which it is connected must be less than $0.25\ \Omega$. Reliable system operation depends on high-precision internal circuitry, which can be damaged by transients in its supply conductors and ground system. Damage to sensitive devices due to transients may not be immediately apparent: degradation may occur over longer periods of time.
- Do not connect the single point ground conductor from the Option 11C Compact system to structural steel members or electrical conduit. In particular, do not tie this conductor to a ground source or grounded electrode that is not hard-wired to the building reference conductor.
- Ground conductors for the Option 11C Compact system:
 - must be a minimum of #6 AWG at any point
 - must be routed through the same conduit as the phase conductors serving the system
 - must not be smaller than any phase conductor in the same conduit
 - must not carry current under normal operating circumstances
- All ground conductors in the building:
 - must be isolated from the neutral bus except at the service entrance to the building
 - must be hardwired to the main ground reference
- Avoid spliced conductors. Continuous conductors have lower impedance and are more reliable than spliced ones.

- All conductors must be terminated in a permanent manner. Make sure all terminations are easily visible and accessible for maintenance purposes.
- Tag ground connections clearly with a message such as “CRITICAL CONNECTION: DO NOT REMOVE OR DISCONNECT”.

CAUTION

Once the system is installed, the impedance of the link between the ground post of the main cabinet and the single point ground to which it is connected must be less than 0.25 Ω .

Ground bus isolation

It is permitted in the USA under the exception to article 384-20 in the NEC to isolate a panel's ground bus from the housing, provided the panel concerned is not at the main service entrance. This is also permitted in some Canadian locations. For more information on ground bus isolation, refer to local electrical codes.

CAUTION

Do not isolate the ground bus from the housing unless it is specifically permitted by local electrical codes. Work inside electrical panels should only be performed by qualified electricians. Do not attempt to remove bonding conductors without approval from qualified personnel.

WARNING

Ground conductors between supply panels must be routed through the same conduit as the supply conductors. This is a safety requirement of both the NEC and CEC.

Grounding method

CAUTION

In order to prevent grounding problems, cabinets should be powered from the same dedicated power panel.

Each Option 11C Compact system cabinet is equipped with two ground lugs located inside the cabinet.

The method of grounding used for the Option 11C Compact system depends on whether or not both cabinets are powered by the same service panel.

Cabinets powered by the same service panel

In the main cabinet, a #6 AWG ground wire is connected from one of the lugs to the ground source (the ground bus in the AC power service panel). The second ground lug is used to extend the ground connection (#6 AWG ground wire) to an expansion cabinet.

Cabinets powered by different service panels

If the expansion cabinet cannot be powered from the same service panel as the main cabinet, then it must be grounded separately to the service panel that supplies it.

Conduit requirements

Conductive conduit linking panels and equipment are legal for use as a grounding network in most countries. It is recommended that properly sized, insulated copper conductors routed inside conduit for all Option 11C Compact system ground paths be used whenever possible. A ground link dependent on conduit may compromise or defeat the improvements made by installing dedicated panels and transformers for the following reasons:

- Conduit links may be separated by personnel servicing unrelated equipment.

WARNING

If conduit link separation occurs anywhere between the Option 11C Compact system and the building ground reference, the conduit is incapable of providing a ground path. This is a hazardous situation.

- Metallic conduit is liable to corrode over time, particularly at threaded connections. Such corrosion increases resistance significantly. This problem is compounded when multiple links are involved. Applications of paint over the conduit may accelerate the corrosion process.
- Conduit is usually anchored to secure surfaces. Often, it is bolted to structural steel members, which may function as ground conductors to very noisy equipment, such as compressors, motors, and so on. The coupling of these noisy signals into the Option 11C Compact grounding system may seriously impair its performance. The resulting intermittent malfunctions can be difficult to trace.

Commercial power requirements

The Option 11C Compact system uses commercial ac power as a power source.

There are two types of ac-powered installations that can be used with the Option 11C Compact system:

- Optimal ac-powered installation
- Alternative ac-powered installation

Optimal power

The optimal power installation for a Option 11C Compact system consists of a direct connection to the electrical system in the building, provided certain requirements are met. [See “Optimal power installation” on page 24.](#)

Alternative power

Alternatively, where meeting the optimum requirements may be too expensive or may not be achievable, an approved isolation transformer may be used. [See “Alternative power installation” on page 27.](#)

Optimal power installation

A dedicated AC service panel should be used with the Option 11C Compact system. Equipment unrelated to the Option 11C Compact system should not be connected to this panel. Keep all lighting, fans, motors, air conditioning equipment, and the like, as “electrically separate” from the Option 11C Compact system as possible.

The ac power requirements for each cabinet are itemized in [Table 5](#). Check power requirements for other system equipment and install additional outlets if required.

Table 5
AC input requirements for each cabinet

Voltage	Maximum rated input voltage 100-240 Volts RMS, single phase, 50-60 Hz.
Power (I/P max)	750 VA minimum
Outlet Type	NEMA IG5-15R for 120 Volt, 15 Amp supply NEMA IG6-15R for 208/240 Volt, 15 Amp supply

Site requirements

The following is a list of required site features for an optimal power system installation.

If the conditions below cannot be provided with a dedicated panel, the use of an Isolation Transformer is recommended, as described under the heading [“Alternative power installation” on page 27](#) of this chapter.

- **Dedicated circuit breaker panel**

Provides power solely to the Option 11C Compact system and its associated hardware, such as TTYs, printers, and so on.

Note: It may not always be possible to power a complete system from a single circuit-breaker panel. For example, an expansion cabinet may be remotely located.

- **Insulated copper ground conductor**

Connects the ground bus in the dedicated panel to the main service panel ground or building ground reference. It must always be routed through the same conduit as the supply conductors feeding the panel.

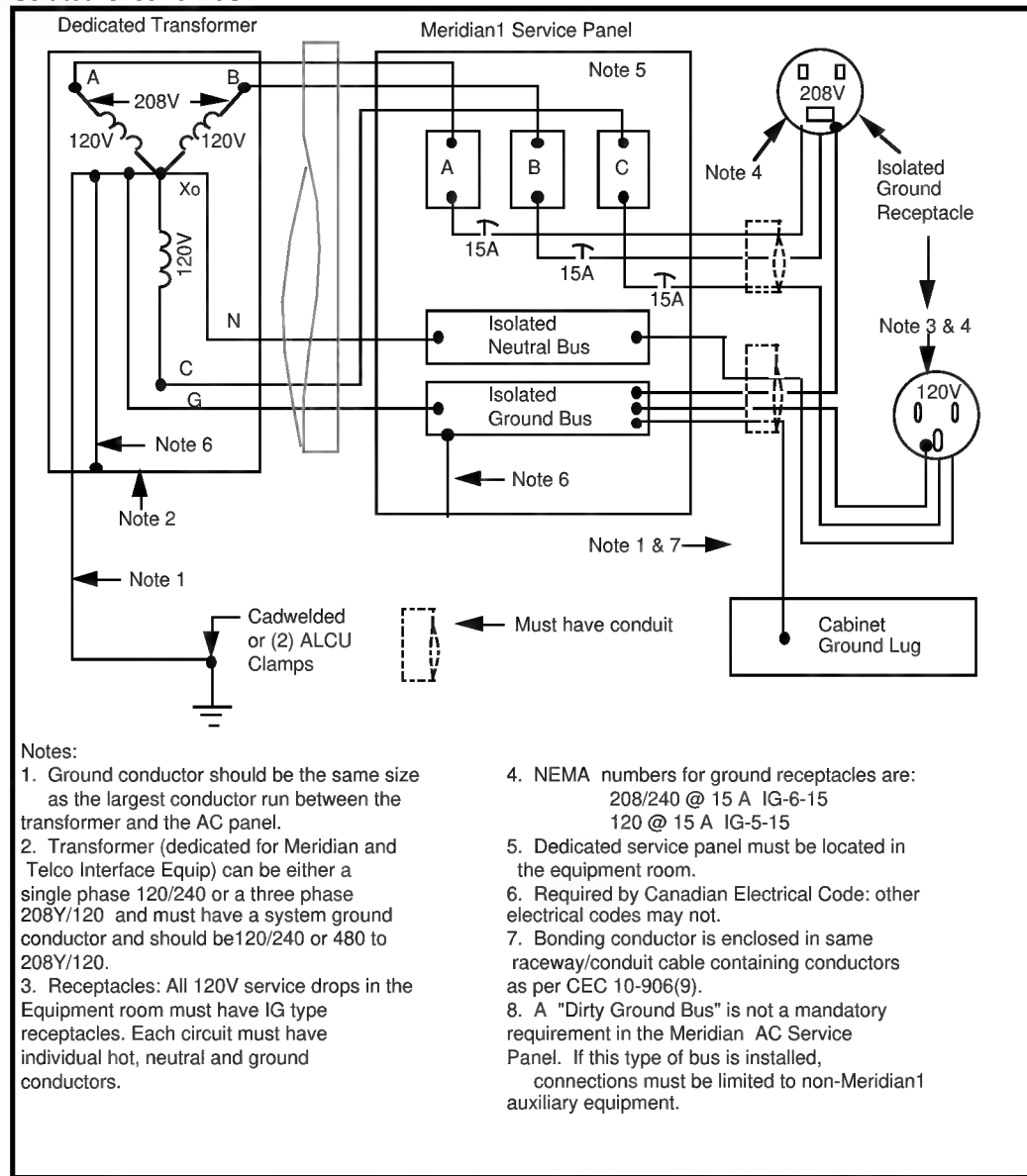
- **Isolated-ground receptacles**

All outlets connected to the dedicated panel should be of the isolated ground type. A separate circuit should be used for each device connected to the panel. Outlets serving the cabinets must be close enough so that the power cord can reach the cabinet power supply.

For systems equipped an expansion cabinet, a separate outlet for each cabinet is required. Each outlet must be from separate circuits in the same panel.

- **Isolated ground bus in the electrical panel, where permitted by local codes.**([Figure 3](#) on [page 26](#))

Figure 3
Isolated Ground Bus



Location of power outlets

Commercial power outlets must be installed within reach of the power cord from the cabinet (the power cord from each cabinet is 9 ft 10 in. [3000 mm] long).

Alternative power installation

If optimal conditions cannot be provided with a dedicated panel, the use of an Isolation Transformer with the following characteristics it is recommended:

- 120/208/240 V input, over-current protected at primary
- 120/208/240 V available at secondary outputs, each circuit breaker-protected
- Primary and secondary windings must be fully isolated from one another
- Certified for use locally as a stand alone user product (CSA, UL, or other locally recognized markings apparent)
- Capable of providing power to all Option 11C Compact system equipment operating simultaneously at full load
- Equipment unrelated to the Option 11C Compact system must not be powered from a transformer serving the Option 11C Compact system.

Isolation transformer ground

The transformer ground should have the following characteristics:

- Separate grounds for primary and secondary windings rather than common ground
- A “clean” and permanent Single Point Ground (SPG) reference at the transformer secondary for the Option 11C Compact system.

Verify the ground conductors inside the transformer to ensure they are sized appropriately.

Note: Do not ground the transformer or Option 11C Compact system to structural steel or water pipes. Connect them to a known building ground reference.

Receptacles

Receptacle requirements are as follows:

- When mounted on the wall, they must be installed within reach of the cabinet power cords (the power cord from each cabinet is 9 ft 10 in. [3000 mm] long).
- All receptacles served by the secondary must be of the isolated ground type
- The ground prong of each outlet must be connected by an insulated conductor to the system SPG

If the transformer has an isolated secondary ground lug, use it as the Single Point Ground (SPG). If it doesn't, use the chassis ground of the transformer as the SPG.

Transformers with pluggable power cords

See the following for installation instructions.

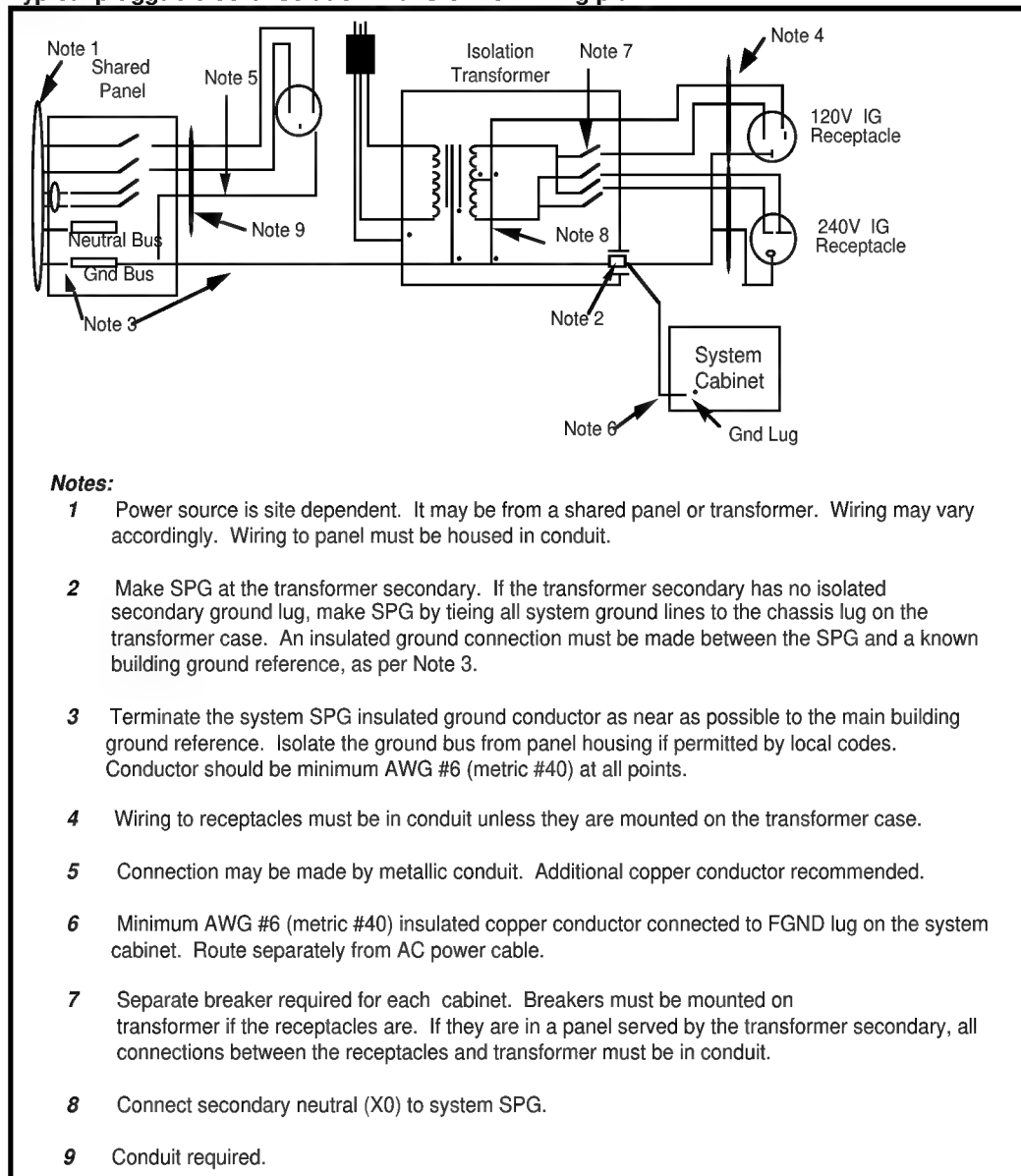
- 1 Connect the power cords of all Option 11C Compact system equipment to the outlets on the transformer secondary.
- 2 Secure an insulated conductor between the ground lug on the main cabinet of the Option 11C Compact system and the SPG lug on the transformer. Place a "DO NOT DISCONNECT" tag on it.

Do not fasten or tie this conductor to the power cable feeding the NTMW11 power supply.

Note: All equipment associated with the Option 11C Compact system should be powered exclusively from the secondary of the transformer and grounded to the secondary isolated ground lug. Do not connect equipment unrelated to the Option 11C Compact system to an isolation transformer powering it.

The transformer primary must be powered through a dedicated circuit. If the primary has a pluggable cord, ensure an additional ground connection is made between the Option 11C Compact system SPG and a known building ground reference. This connection is vital for safe and reliable operation. Do not connect any Option 11C Compact system ground lines to structural steel or water pipes, or any other unreliable ground path. Use a ground point known to be “clean” and permanent. Place a “DO NOT DISCONNECT” tag on it. [Figure 4](#) shows the pluggable cord connections.

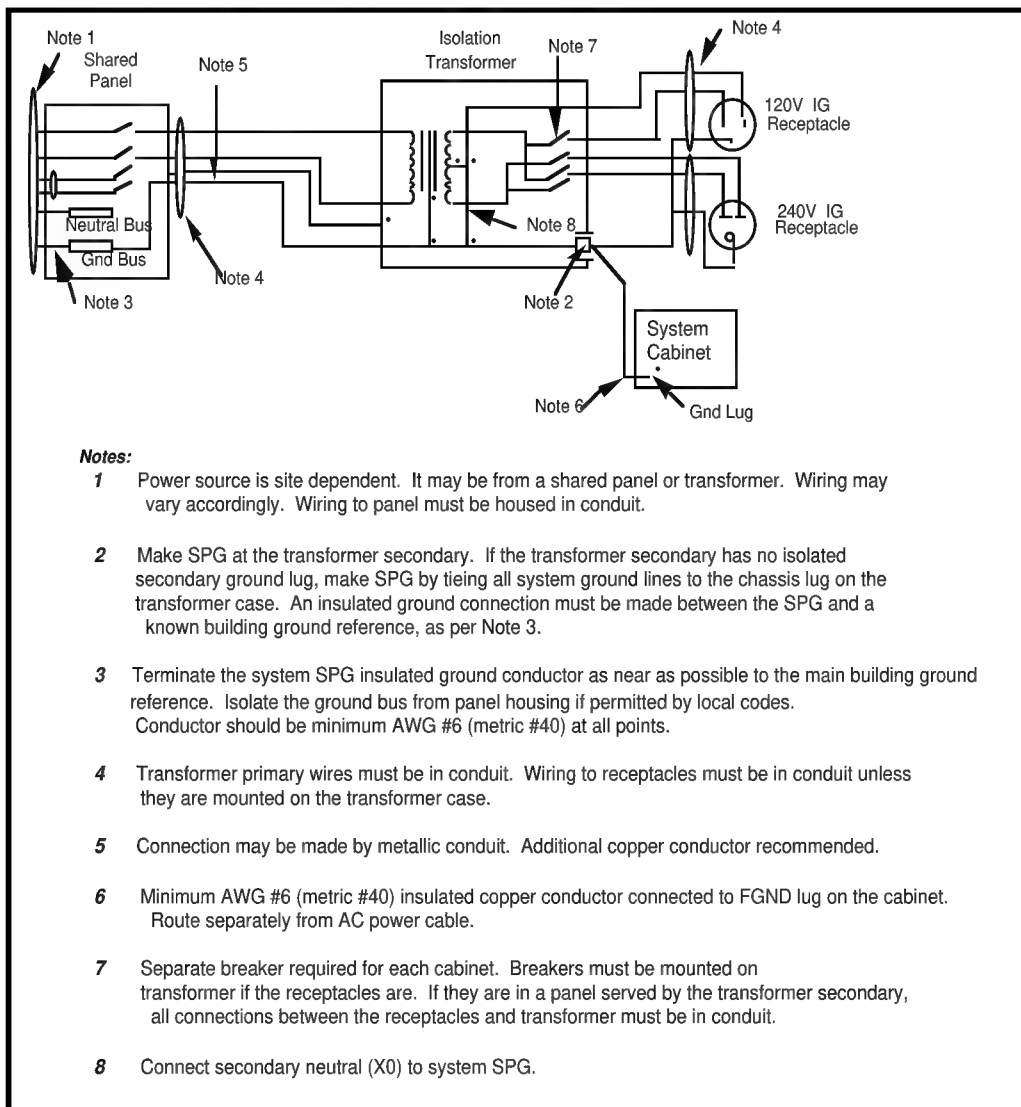
Figure 4
Typical pluggable cord Isolation Transformer wiring plan



Transformers without pluggable power cords

If the transformer does not have a pluggable cord, it must be hardwired to an electrical panel, and all wires (including grounds) must be routed through a single conduit. Some electrical codes permit the use of conduit as the sole ground conductor between pieces of equipment. It is recommended that a separate insulated ground conductor be run through the conduit to bond chassis grounds together. Such a conductor will maintain the safety ground connection in the event that the conduit becomes corroded or disconnected. All ground lines should be run through the same conduit as the phase conductors serving the equipment. [Figure 5](#) shows the Isolation transformer connections.

Figure 5
Typical hardwired Isolation Transformer wiring plan



Auxiliary equipment power

Terminals, printers, modems, and other data units used in conjunction with the Option 11C Compact system require special wiring considerations.

Power for system equipment in the switch room must:

- be powered from the same panel or transformer as the Option 11C Compact system
- be grounded to the same panel or transformer as the Option 11C Compact system
- be tagged at the panel to prevent unauthorized interruption
- not be controlled by a switch between the breaker and the equipment.

Service receptacles for the system and associated equipment should be:

- of the isolated ground type, such as NEMA IG5-15
- rated for 120 or 240 V, 15 or 20A, 50-60 Hz, 3-pole, 3-wire, grounded
- grounded to the same location so as to form a Single Point Ground.

Modem requirements

The system can be equipped with a modem to allow remote access. See “Chapter 15 – Installing and connecting SDI and ethernet ports” on page 117 for information about setting-up modems recommended for use with the Option 11C Compact system.

The minimum requirement is a 1200 bps auto-answer modem.

If an error-correcting modem is connected to the Option 11C Compact system, all flow-control and error-correcting functionality of the modem must be disabled to ensure proper operation. Refer to the modem manufacturer’s instructions for information.

Maintenance and administration terminals

A Modem Eliminator (NULL Modem without hardware handshaking) A0601397 F-F converter or A0601396 M-F converter may be required to interface the TTY to the system.

See “Terminal setup” on page 122 for terminal set-up information.

On-site access

Each system should be equipped with an M2616 or M2008 telephone with a display assigned as a maintenance telephone.

A variety of TTY terminals can be used to access the Option 11C Compact system. However, a VT220 terminal is recommended as an on-site terminal. It can be used to perform service changes, maintenance and diagnostic functions, as well as Meridian Mail Option 11C Compact administration activities.

Remote access

Although several types of modems can be used to access the system, a 2400 baud auto-answer modem is the recommended modem and 1200 baud is the minimum. It can be used to perform service change, maintenance and diagnostic functions, as well as Meridian Mail Option 11C Compact administration activities from a remote location.

Note: Additional maintenance functions can be performed through remote access on the Option 11C Compact system. For additional information, refer to the *Customer Configuration Backup and Restore Guide*.

Cross-connect terminal requirements

Allow for future expansion and equipment changes at the cross-connect terminal.

The cross-connect terminal should have sufficient space for connecting blocks to terminate the following wires:

- one 25-pair cable from each PE card (maximum six per cabinet)
- wiring from telephone sets and trunks.

The **BIX cross-connect system** is recommended for use with the system. However, use of this system is not mandatory. Other similar cross-connect systems can also be used.

Information about the **BIX cross-connect system** is found in the following Nortel Publications (NTPs):

- *BIX In-Building Cross-Connect System Material Description* (NTP 631-4511-100)
- *BIX In-Building Cross-Connect System Planning* (NTP 631-4511-150)
- *BIX In-Building Cross-Connect System Material Installation and Servicing* (NTP 631-4511-200)

Equipment layout plan

Develop an equipment layout plan to determine where each system component will be positioned before installing the Option 11C Compact system.

Preparation of the site according to the plan is important. Site preparation consists of making sure the site is ready to accept the equipment and that items such as power outlets and backboards are correctly installed.

Consideration should be given to the lengths of the various cables in order to make the best use of space available. Refer to Table 2, “Cable and wire specifications,” on page 14 for a complete description of Option 11C Compact system cable and wire specifications.

General layout guidelines

CAUTION

The mounting surface must be able to support at least 100 lb (45 kg). It is recommended that you secure a backboard consisting of 3/4 in. (20 mm) plywood, or other similar material, to the surface of the wall to hold the equipment.

Use the following guidelines to assist in positioning the system equipment:

- The cabinets are designed to be mounted on a wall.
- Each cabinet measures approximately 20 in. (510 mm) high by 15 in. (380 mm) wide by 12 in. (305 mm) deep.
- If only installing a main cabinet, leave adequate space for an expansion cabinet.

Note: The interconnecting fiber optic cable measures approximately 33 ft (10 m). The distance between the cabinets is therefore limited by the length of the interconnecting fiber optic cable.

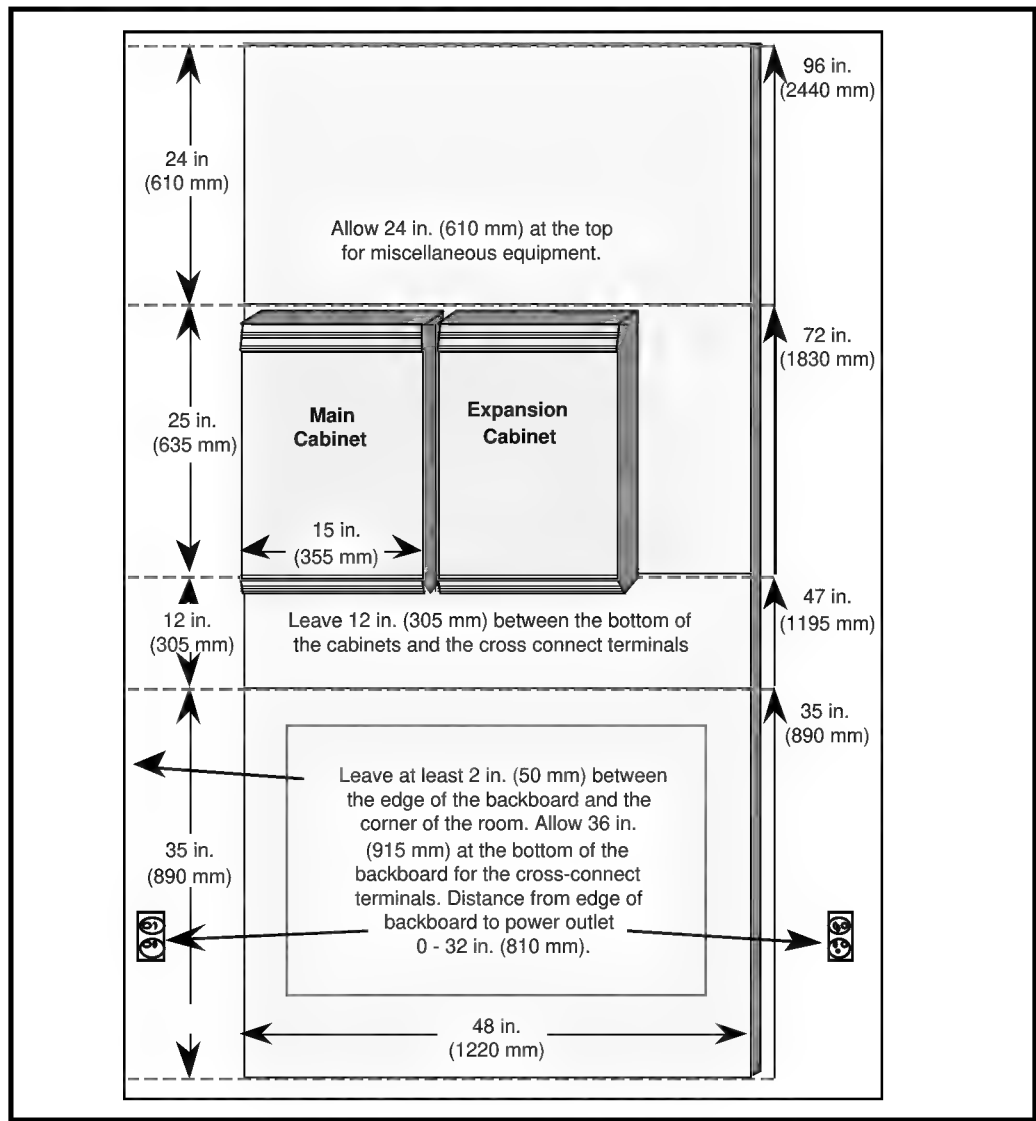
- When planning for a system that is equipped with DTI/PRI capability, allow space on the backboard for the channel service unit (CSU).

- Leave at least 6 in. (155 mm) above the mounting bracket and any obstruction (such as a pipe or conduit) so that there is room to lift the cabinet on and off the bracket.
- Leave at least 12 in. (305 mm) between the top of a cabinet and the ceiling to ensure proper ventilation.
- Leave at least 10 in. (255 mm) between the bottom of the cabinet and the floor to prevent water damage and to allow for ventilation.
- If the NTAK92 Off-premises protection module is used, allow for proper installation (according to local practices)
- Ensure power outlets are within reach of each cabinet. Cable and wire specifications are shown in Table 2, “Cable and wire specifications,” on page 14.

Equipment layout plan for wall mounting

[Figure 6](#) shows a typical wall layout using BIX cross-connection equipment. Use of other types of terminal blocks and equipment will alter the layout.

Figure 6
Typical minimum distance layout of wall mounted cabinets



Card slot assignments

A card slot allocation plan showing circuit card to Peripheral Equipment (PE) slot assignments ([Figures 7](#) and [8](#)) should be prepared for each cabinet.

NTMW01 Small System Controller (SSC)

The NTMW01 Small System Controller (SSC) card must be installed in the main cabinet in the CPU slot. It can be equipped with an NTDK22 10m Fiber Expansion Daughterboard to provide a connection to an expansion cabinet.

NTMW02 Meridian Mail CPU card

The NTMW02 Meridian Mail CPU card must be installed in the main cabinet in the MMail slot. It can be equipped with up to two NTMW03 4 Port Mail DSP Daughterboards. Each daughterboard supports four voice mail ports.

NTMW04 DTI/PRI card

The NTMW04 DTI/PRI card must be installed in the main cabinet in any of slots 1 & 2, 3 & 4 or 5 & 6 (upper PE slots).

The NTMW04 card is recognized by the system as the odd-numbered card when installed as follows:

- card 1, when installed in slot 1 & 2
- card 3, when installed in slot 3 & 4
- card 5, when installed in slot 5 & 6

Note: This card cannot be installed in the lower PE slots of the main cabinet (slots 7 through 9) or in any slot of an expansion cabinet.

Line cards

The following Peripheral circuit cards can be installed in any slot in the main and expansion cabinets:

- NTMW05 24 Port Digital Line Card
- NTMW06 16 Port Analog Line Card

Combined Trunk and Line card

The NTMW07 Analog Trunk/Line Card can be installed in any upper PE slots of the main and expansion cabinets.

The trunk portion of the card is always recognized by the system software as the odd-numbered card as follows:

- card 1, when installed in slot 1 & 2
- card 3, when installed in slot 3 & 4
- card 5, when installed in slot 5 & 6
- card 11, when installed in slot 11 & 12
- card 13, when installed in slot 13 & 14
- card 15, when installed in slot 15 & 16

The line portion of the card is always recognized by the system software as the even-numbered card as follows:

- In the main cabinet
 - card 2, when installed in slot 1 & 2
 - card 4, when installed in slot 3 & 4
 - card 6, when installed in slot 5 & 6
- In the expansion cabinet
 - card 12, when installed in slot 11 & 12
 - card 14, when installed in slot 13 & 14
 - card 16, when installed in slot 15 & 16

To prepare the plan, list the total number of the following circuit cards required for the installation:

Used only in the main cabinet

NTMW01 SSC	1
NTMW02 Meridian Mail CPU	1
NTMW04 1.5 Mb DTI/PRI	
NTDK22 Fibre Daughterboard	
Voice Mail Daughterboards	

Used only in expansion cabinets

NTMW10 Fiber Receiver card	1
----------------------------	---

Used in the main and expansion cabinets

NTMW11 Power Supply	
NTMW05 Digital line card	
NTMW06 Analog line card	
NTMW07 Analog Trunk/Line card	

Note 1: Expansion cabinet requires an NTMW10 Fiber Receiver card positioned in CPU slot.

Assign the cards to the main cabinet first. Fill the remaining card slots as required.

Assign all line cards in consecutive card slots if using the pre-assigned numbering plan with consecutive Directory Numbers (DN).

Figure 7
Main cabinet layout

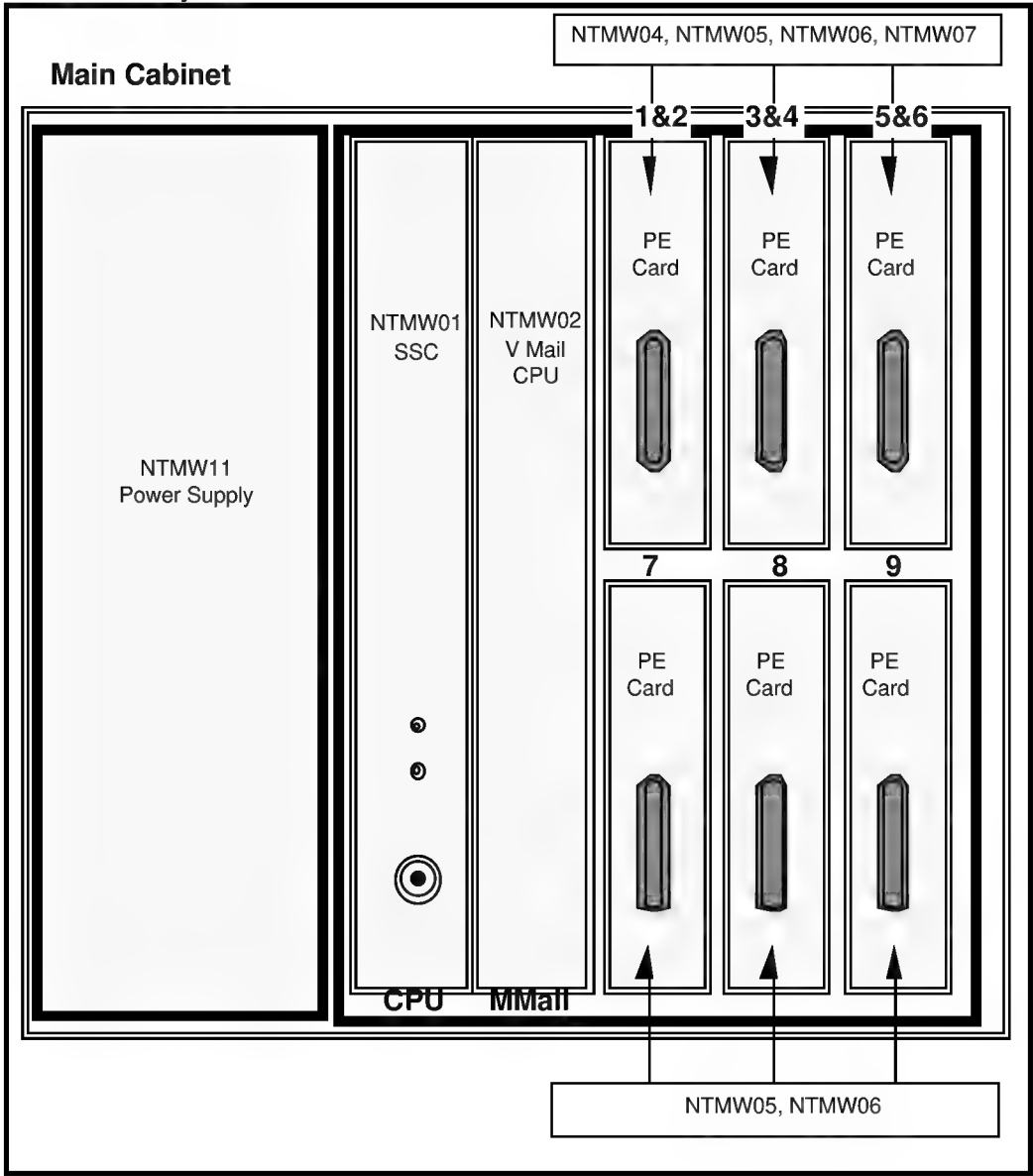
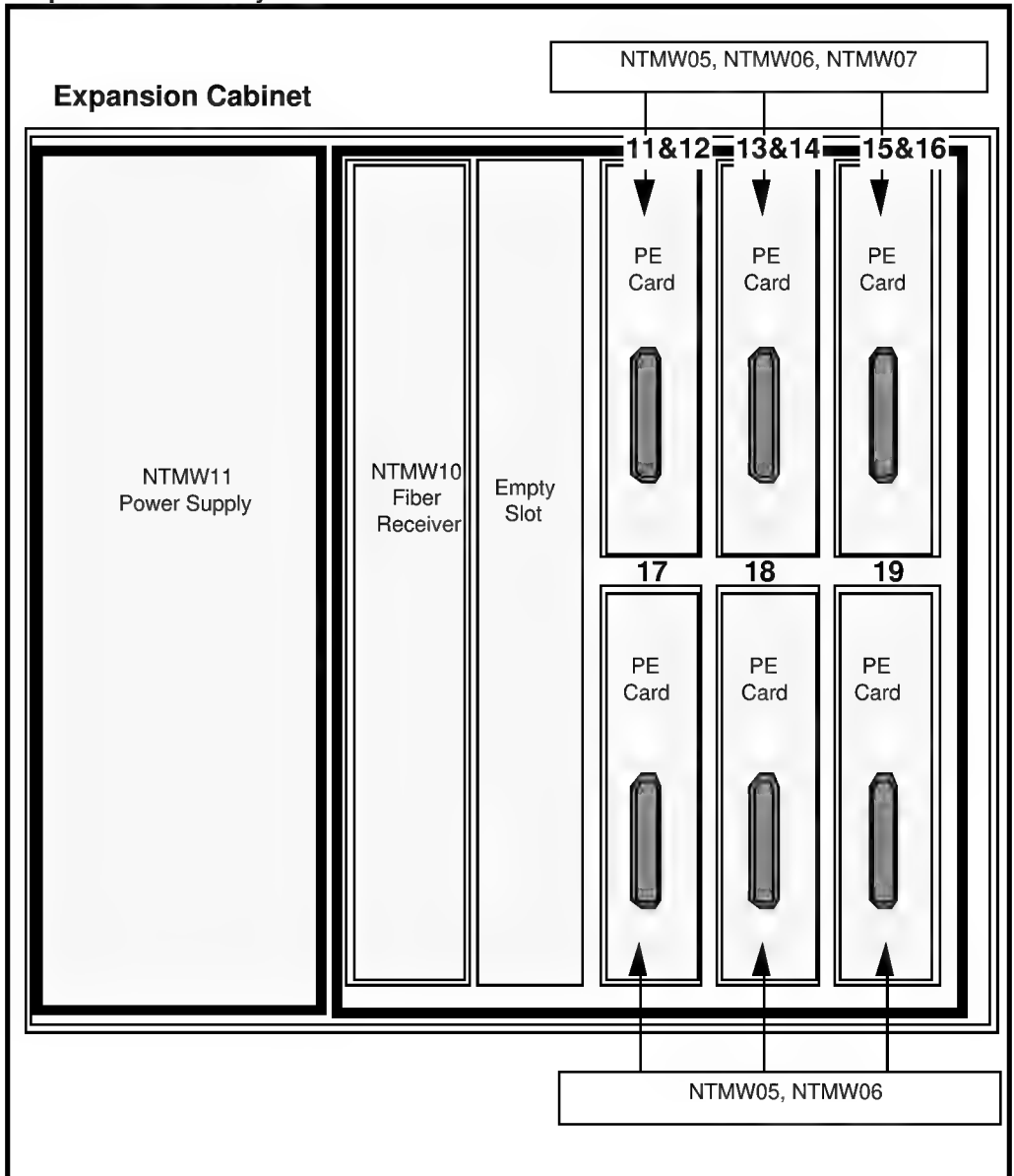


Figure 8
Expansion cabinet layout



Chapter 4 — Regulatory and other information

WARNING

The fiber optic interface product used in the Meridian 1 Option 11C Compact is considered safe. However, as a precaution do not view the optical port or the end of fiber optic cable. Under certain conditions (such as during cable testing or under light magnification) the cable or port may expose the eye beyond the limits of Maximum Permissible Exposure recommended in some jurisdictions. Do not remove protective caps or plugs until ready to connect the cable.

Notice for United States installations

The Meridian 1 Option 11C Compact complies with Part 68 of the FCC rules. Each system cabinet has a label that contains, among other information, the FCC registration number and Ringer Equivalence Number (REN) for this equipment. If requested, this information must be provided to the telephone company.

Importance of Ringer Equivalence Number

The FCC regulation label includes the Ringer Equivalence Number (REN). This number is a representation of the electrical load that will be applied to your telephone line once the PBX is plugged into the wall jack. The telephone line serving your premises will not operate properly if the total ringer load exceeds the capability of the telephone company central office equipment. That is, if too many ringers are connected to the line, there may be insufficient energy to ring your system. If the ringer load is excessive, you may also have difficulty dialing telephone numbers.

For more information about the total REN permitted for your telephone line, contact your local telephone company. However, as a guideline, a total REN of five should allow normal operation of your equipment.

If your Meridian 1 Option 11C Compact equipment causes harm to the telephone network, the telephone company may discontinue your service temporarily. The telephone company may ask you to disconnect the equipment from the network until the problem has been corrected, or you are sure that the equipment is not malfunctioning. If it is possible, they will notify you in advance of the pending disconnection. You will also be advised of your right to file a complaint with the FCC.

Your telephone company may make changes in its facilities, equipment, operations or procedures that could affect the proper operation of your equipment. If they do, you will be given advance notice so as to give you an opportunity to maintain uninterrupted service.

If you experience trouble with your Meridian 1 Option 11C Compact equipment, contact your authorized distributor or service center in the USA for repair or warranty information.

Hearing aid compatibility

All proprietary telephones used with the Meridian 1 Option 11C Compact comply with the requirements of FCC Part 68 Rule 68.316 for hearing aid compatibility.

Notice for Canadian installations

The Industry Canada - formerly called the Canadian Department of Communications - label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. The Department does not guarantee that the equipment will operate to the user's satisfaction.

The Load Number (LN) assigned to each terminal device is the percentage of the total load that can be connected to a telephone loop using the device. This number prevents overloading. The termination on a loop can consist of any combination of devices, provided that the total of the Load Numbers does not exceed 100. An alphabetic suffix is also specified in the Load Number for the appropriate ringing type (A or B), if applicable. For example, LN = 20 A designates a Load Number of 20 and an "A" type ringer.

Before installing any equipment, users should ensure it is permissible to be connected to the facilities of the local telecommunications company. The equipment must be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telephone company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CAUTION

The Option 11C Compact frame ground of each system cabinet must be tied to a reliable building ground reference.

WARNING

Users should not attempt to make electrical ground connections themselves, but should contact their local electrical inspection authority or electrician.

Repair facilities

The addresses for repair facilities for Canada and the United States are given below.

Canada

Northern Telecom Canada Ltd.
250 Sidney Street
Belleville, Ontario
Canada, K8N 5B7

United States

Northern Telecom Inc.
640 Massman Drive
Nashville, Tennessee
U.S.A. 37210

U.S.A. and Canada Network connections

Table 6 contains information that must be given to the local telephone company when ordering standard network interface jacks for the Option 11C Compact. Note that the table includes columns for system port identification, Facility Interface Code (FIC), Service Order Code (SOC), USOC jack identification and associated Nortel equipment part numbers.

North American Numbering Plan

The software configuration within the Meridian 1 Option 11C Compact that allows the user access to the public network must be re-programmed to recognize newly established network area codes as they are placed in service.

Failure to re-program the system to recognize the new codes as they are established may restrict the customer and the customer's employees from gaining access to the network and these codes.

Bell Communications Research (BellCore) publishes the North American Numbering Plan (NANP) on paper, microfiche and tape. An abbreviated summary of the newly established area codes and exchange codes is available. BellCore may be contacted at (608) 699-6700 to obtain appropriate information to keep customer equipment upgraded.

Equal Access

This equipment is capable of providing users access to interstate providers of operator services through the use of access codes. Modification of this equipment by call aggregators to block access dialing codes is a violation of the Telephone Operator Consumers Act of 1990.

FCC compliance: registered equipment for Direct Inward Dial (DID) calls

Equipment registered for Direct Inward Dial (DID) calls must provide proper answer supervision. Failure to meet this requirement is a violation of part 68 of the FCC's rules.

Proper answer supervision is defined as follows:

- DID equipment returns answer supervision to the Central Office when DID calls are:
 - answered by the called station
 - answered by the attendant
 - routed to a recorded announcement that can be administered by the CPE user
 - routed to a dial prompt
- DID equipment returns answer supervision on all DID calls forwarded to the Central Office. Permissible exceptions are:
 - a call is unanswered
 - a busy tone is received
 - a reorder tone is received

Table 6
Network connection specifications

Ports MTS/WATS	Facility Interface Code	Service Order Code	REN	Network Jacks	Manufacturer network interface port designation
2-Wire, LSA, L-S (2-Wire, Local Switched Access, Loop-Start)	02LS2	9.0F	1.1B	RJ21X or CA21X	NTMW07
2-Wire, LSA, G-S (2-Wire, Local Switched Access, Ground-Start)	02GS2	9.0F	1.1B	RJ21X or CA21X	NTMW07
2-Wire, LSA, R-B (2-Wire, Local Switched Access, Reverse-Battery)	02RV2-T	9.0F	0.0B	RJ21X or CA21X	NTMW07
1.544 Mbps OSI, SF	04DV9-B	6.0P	N/A	RJ48 or A48	NTMW04
1.544 Mbps OSI, SF	04Dv9-C	6.0P	N/A	RJ48 or CA48	NTMW04

Radio and TV interference

The Option 11C Compact complies with Part 15 of the FCC rules in the U.S.A. Operation is subject to the following two conditions:

- Option 11C Compact may not cause harmful interference.
- Option 11C Compact must accept any interference received, including interference that may cause undesired operation.

If the Meridian 1 Option 11C Compact causes interference to radio or television reception, which can be determined by placing a telephone call while monitoring, the user is encouraged to try to correct the interference by the following measures:

- Reorient the receiving TV or radio antenna where this may be done safely.
- To the extent possible, relocate the receiver with respect to the telephone equipment.

If necessary, the user should consult the dealer or an experienced radio or television technician for additional suggestions. The user may also find helpful the booklet “How to Identify and Resolve Radio-TV Interference,” prepared by the Federal Communications Commission. This booklet is available from the U.S. Government Printing Office, Washington, DC 20402.

Information for Canada

The Option 11C Compact system does not exceed Class A limits for radio noise emissions from digital apparatus, as set out in the radio interference regulations of Industry Canada.

Chapter 5 — Safety instructions

SAVE THESE INSTRUCTIONS

This Chapter provides important safety information for installing and using your telephone equipment. Make sure this Chapter is readily available for use as a reference tool.

Symbols you should recognize

Whenever you see the symbol shown below on Meridian 1 Option 11C Compact equipment or documentation, it is intended to alert you to the presence of important operating and maintenance instructions.



Safety instructions when installing telephone equipment

- 1** Never install telephone wiring during a lightning storm.
- 2** Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- 3** Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- 4** Use caution when installing or modifying telephone lines.

Safety instructions when using telephone equipment

When using telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and injury to persons, including the following:

- 1** Follow all warnings and instructions marked on the product.
- 2** Unplug the telephone from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- 3** Do not use the telephone near water, for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement or near a swimming pool.
- 4** Do not place the telephone on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
- 5** Slots and openings in the cabinet and the back or bottom are provided for ventilation, to protect it from overheating. These openings should never be blocked or covered.

The openings on a telephone should never be blocked by placing the product on the bed, sofa, rug, or other similar surface. The product should never be placed near or over a radiator or heat register. The product should not be placed in a built-in installation unless proper ventilation is provided.

- 6** The product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply, consult your distributor.

- 7** Some equipment is equipped with a three-wire grounding type plug: a plug having a third grounding pin. The plug will only fit into a grounding type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace the obsolete outlet. Do not defeat the purposes of the grounding-type plug.

Some equipment is equipped with a polarized line plug: a plug having one blade wider than the other. This plug will fit into the power outlet only one way. This also is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug still doesn't fit, contact your electrician to replace the obsolete plug. Do not defeat the purpose of the polarized plug.

- 8** Do not allow anything to rest on the power cord. Do not locate the product where the cord will be abused by persons walking on it.
- 9** Do not overload wall outlets and extension cords as this can result in the risk of fire or electrical shock.
- 10** Never push objects of any kind into the product through cabinet slots as they may touch dangerous voltage points, or short out parts that could result in a risk of fire or electrical shock. Never spill liquid of any kind onto the product.
- 11** To reduce the risk of electrical shock, do not disassemble a non-operating product.
- 12** Unplug the telephone from the wall outlet and refer servicing to qualified personnel under the following conditions:
- a** When the power supply cord or plug is damaged or frayed
 - b** If liquid has been spilled into the telephone
 - c** If the telephone has been exposed to rain or water
 - d** If the telephone has been dropped or the cabinet has been damaged
 - e** If the product exhibits a distinct change in performance
 - f** If the telephone does not function properly under normal operating conditions
- 13** Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
- 14** Do not use the telephone to report a gas leak in the vicinity of the leak.

Fiber optic cable handling procedures

WARNING

The fiber optic interface product used in the Option 11C Compact is considered safe. However, as a precaution do not view the optical port or the end of fiber optic cable. Under certain conditions (such as during cable testing or under light magnification) the cable or port may expose the eye beyond the limits of Maximum Permissible Exposure recommended in some jurisdictions. Do not remove protective caps or plugs until ready to connect the cable.

The Option 11C Compact system supports fiber optic cable interconnection between system cabinets using the following equipment:

- A0632902 10 m Plastic Fiber Optic cable (multi-mode)
- NTDK22 10 m Fiber Expansion daughterboard
- NTMW10 Fiber Receiver card

The following safety precautions must be followed when handling fiber equipment:

- All persons handling Fiber Expansion daughterboards and Fiber Receiver cards must be Electrostatic Discharge (ESD) protected.
- Always ensure the fiber optic cable is routed out of the way of any traffic through the premises.
- Never staple or bend the fiber optic cable at an extreme angle. Do not exceed the minimum bend radius of 1.5 in. (35 mm) (90° soft bend).

Note: A conduit is not required for routing fiber optic cable between cabinets. However, if a conduit is required for identification or other reasons, use a conduit measuring a minimum of 1 in. (25 mm) in diameter to allow the connector on the cable to pass through.

Chapter 6 – Bracing cabinets against earthquakes

General information

The cabinets must be mounted on the wall in order to meet earthquake protection requirements.

Earthquake bracing is performed by securely fastening a 3/4 in.(20 mm) sheet of plywood to the wall, then placing the system components on the backboard (not attaching them directly to the wall).

Table 7
Steps for earthquake bracing of system cabinets

Step	Description
1	Determine the size of the backboard.
2	Determine the fasteners required to mount the backboard to the wall.
3	Determine where to place the fasteners on the backboard.
4	Proceed with the system Installation.

Bracing system cabinets

The following describes how to brace the cabinets.

1 Determine the size of the backboard.

A backboard large enough to accommodate all the wall-mounted components is needed. Refer to the equipment layout plan for the site.

Note: An equipment layout plan should have been previously completed. Refer to “Equipment layout plan” on page 36 for further details.

The backboard size should be within the following limits:

	Backboard size
Minimum	2 ft by 6 ft (600 mm by 1800 mm)
Maximum	4 ft by 8 ft (1200 mm by 2400 mm)

2 Determine fastener requirements

The following information is needed to determine fastener requirements:

- Type of fasteners needed.
- The minimum embedment of the fasteners into the wall.
- The vertical distance between fasteners.
- The horizontal distance between fasteners.
- For wood and metal stud walls, this requirement is determined by the spacing between wall studs, which must be within the following range:

	Stud spacing
Minimum	16 in. (400 mm)
Maximum	24 in. (600 mm)

- The required wall stud sizes for wood and metal stud walls.

Table 8
Hardware recommendations

Type of wall	Fastener	Vertical spacing between fasteners	Minimum embedment
Wood stud	#10 Wood Screws	12 in. (300 mm) on center	1 in. (25 mm)
Metal stud	#14 Sheet Metal Screws	12 in. (300 mm) on center	
Concrete	1/4 in. (6 mm) Hilti KB-II	24 in. (600 mm) on center	1 1/8 in. (28 mm)
Masonry	1/4 in. (6 mm) Ramset Redhead Dynabolt Sleeve Anchor	24 in. (600 mm) on center	

Table 9
Minimum wall stud sizes — 16 inch spacing

Wall Studs	Maximum Height of wall
Wood Studs	
2 X 4 (DF #2)	11 ft (3300 mm)
2 X 6 (DF #2)	19 ft (5700 mm)
Metal Studs	
2 1/2 X 20 Gauge	9 ft (2700 mm)
2 1/2 X 16 Gauge	10 ft (3000 mm)
2 1/2 X 14 Gauge	11 ft (3300 mm)
3 5/8 X 20 Gauge	12 ft (3600 mm)
3 5/8 X 18 Gauge	13 ft (3900 mm)
3 5/8 X 16 Gauge	14 ft (4200 mm)
3 5/8 X 14 Gauge	16 ft (4800 mm)
4 X 20 Gauge	14 ft (4200 mm)
4 X 18 Gauge	15 ft (4500 mm)
4 X 16 Gauge	16 ft (4800 mm)
4 X 14 Gauge	17 ft (5100 mm)
6 X 18 Gauge	20 ft (6000 mm)

Table 10
Minimum wall stud sizes — 24 inch spacing

Wall Studs	Maximum Height of wall
Wood Studs	
2 X 4 (DF #2)	10 ft (3000 mm)
2 X 6 (DF #2)	17 ft (5100 mm)
Metal Studs	
2 1/2 X 20 Gauge	8 ft (2400 mm)
2 1/2 X 18 Gauge	9 ft (2700 mm)
2 1/2 X 14 Gauge	10 ft (3000 mm)
3 5/8 X 20 Gauge	11 ft (3300 mm)
3 5/8 X 18 Gauge	12 ft (3600 mm)
3 5/8 X 16 Gauge	13 ft (3900 mm)
3 5/8 X 14 Gauge	15 ft (4500 mm)
4 X 20 Gauge	12 ft (3600 mm)
4 X 18 Gauge	13 ft (3900 mm)
4 X 16 Gauge	14 ft (4200 mm)
4 X 14 Gauge	16 ft (4800 mm)
6 X 18 Gauge	18 ft (5400 mm)

3 Determine the placement of fasteners.

Refer to the following figures for assistance with the placement of fasteners on the backboard. In each figure, the minimum sized backboard (2 ft by 6 ft) and the maximum sized backboard (4 ft by 8 ft) are used as examples:

- **Figure 9:** provides fastener locations for wood and metal stud walls with the minimum allowed stud spacing of 16 in. (400 mm).
- **Figure 10:** provides fastener locations for wood and metal stud walls with the maximum allowed stud spacing of 24 in. (600 mm).
- **Figure 11:** provides fastener locations for concrete and masonry walls.

Figure 9
Plywood fastener locations for wood and metal stud walls — 16 inch spacing

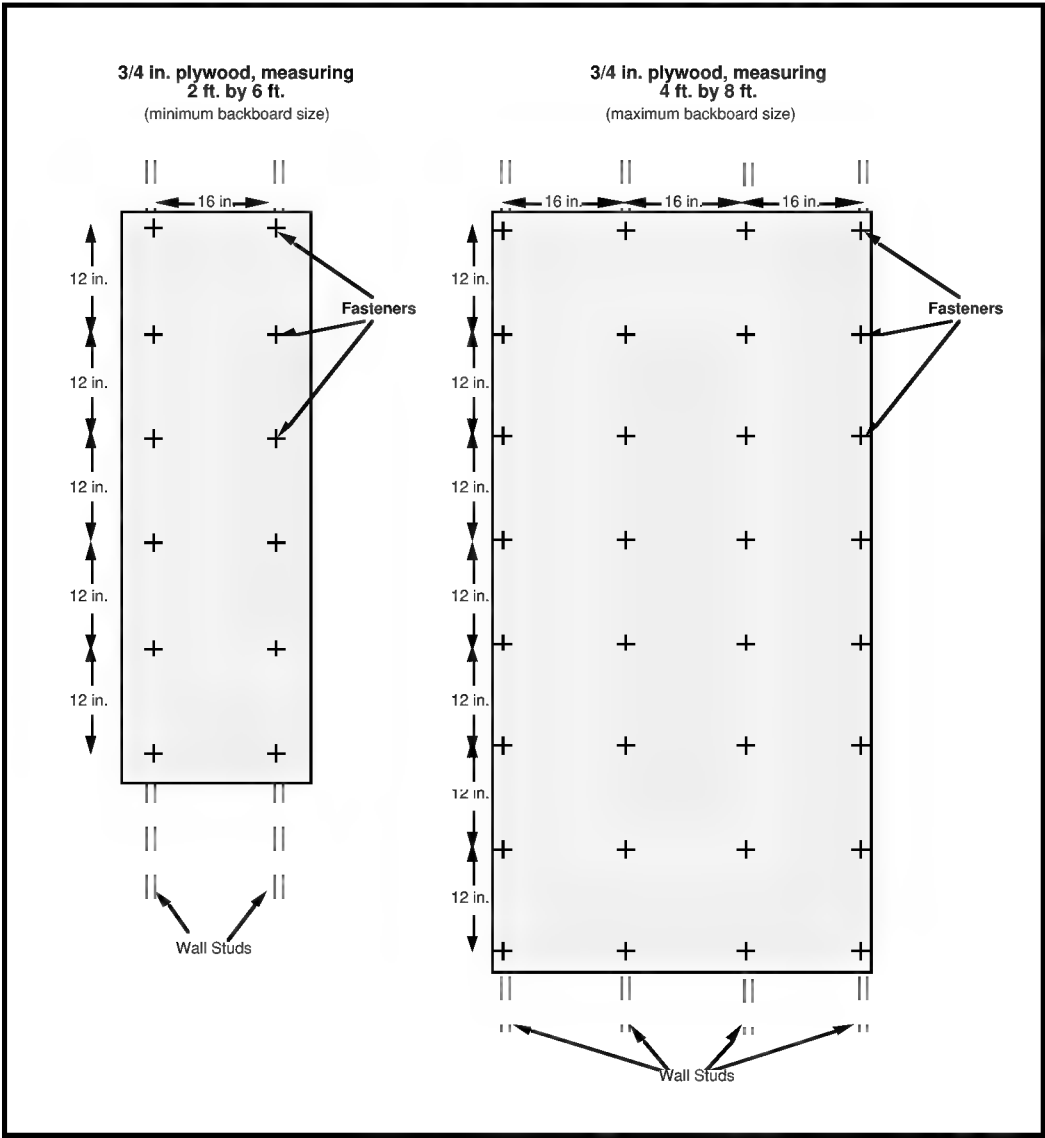


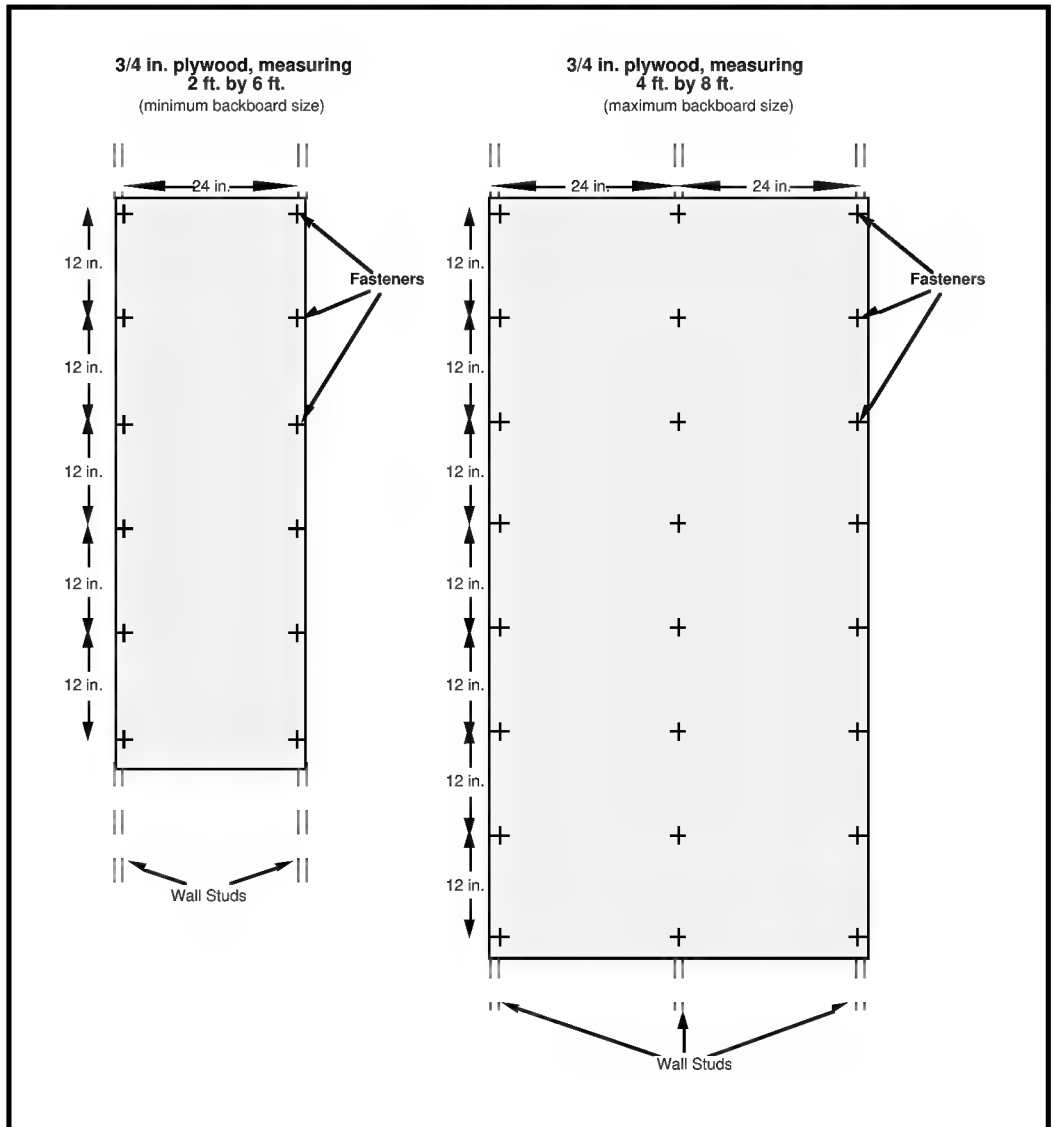
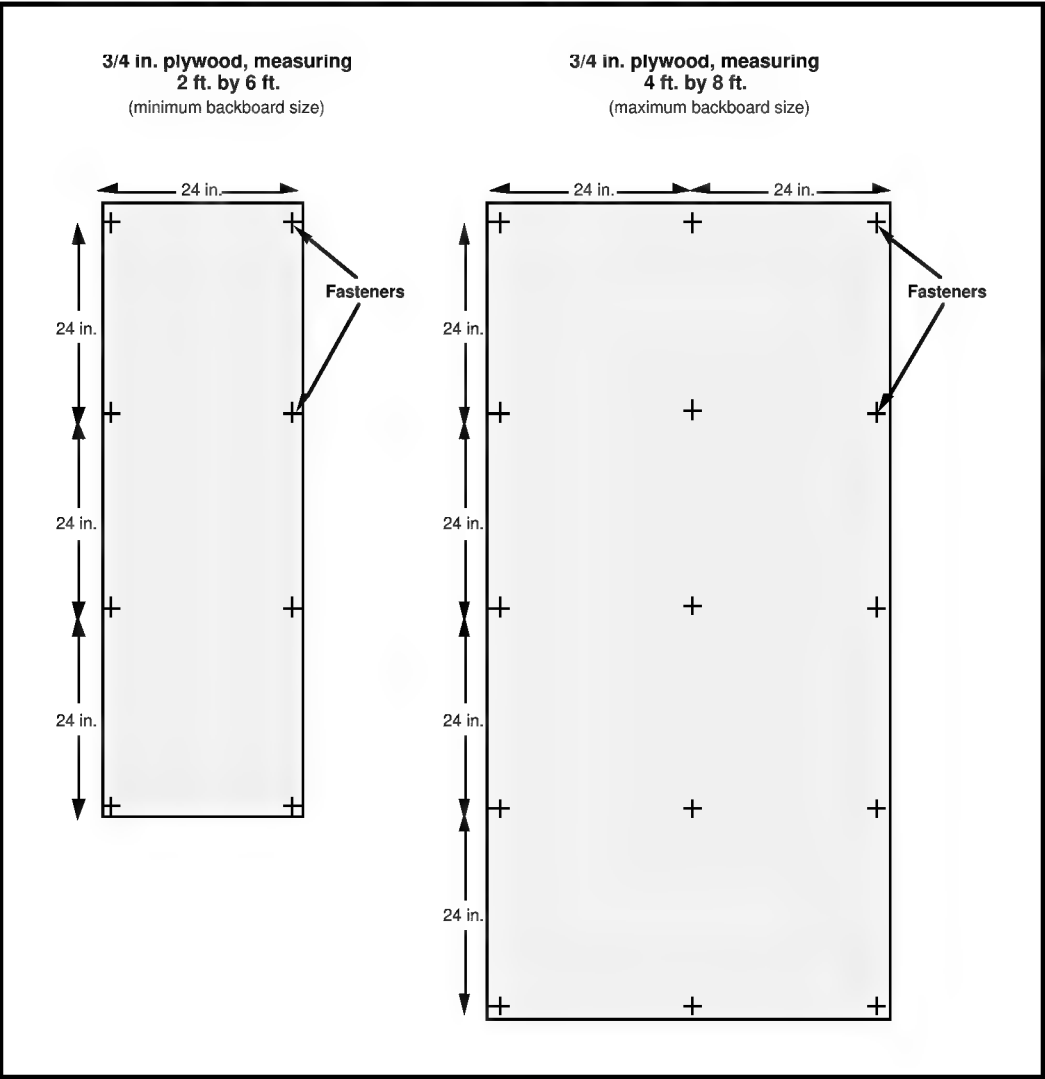
Figure 10**Plywood fastener locations for wood and metal stud walls — 24 inch spacing**

Figure 11
Plywood fastener locations for concrete and masonry walls



4 Proceed with the system installation

Once the backboard is securely fastened to the wall, proceed with the equipment installation procedures as described in “Chapter 7– Preparing for installation” on page 67.

End of Procedure

Chapter 7– Preparing for installation

Before proceeding with the installation, obtain all the tools necessary to install the Meridian 1 Option 11C Compact.

Check the site requirements. Make sure that all the equipment has been received, and that equipment layout and card slot assignment plans have been prepared.

Tools checklist

The following is a list of tools needed to install the system components:

- ☐ a variety of screwdrivers
- ☐ a tape measure
- ☐ a level
- ☐ pliers such as side cutters and longnose pliers
- ☐ an ECOS 1023 POW-R-MATE or similar type test meter
- ☐ appropriate cable terminating tools
- ☐ a drill for drilling lead holes for screws

Readiness checklist

Before proceeding:

- ☐ read all safety instructions in “Chapter 5 — Safety instructions” on page 53
- ☐ check to ensure you all the equipment ordered has been received
- ☐ make sure the site meets all environmental requirements
- ☐ check for all power requirements
- ☐ check for proper grounding facilities
- ☐ make sure an equipment layout plan for the system has been prepared
- ☐ make sure a card slot allocation plan has been prepared
- ☐ make sure all the tools required to proceed with the installation are available

Chapter 8 – Installing a new system

General information

This chapter how to install a Meridian Option 11C Compact system, with or without an expansion cabinet.

Make sure that an equipment layout plan and card slot layout plan have been created and are available, and that site requirements, as described in “Chapter 3 — System and site requirements” on page 17 are met.

Installing the system

Follow the steps in [Procedure 1 on page 69](#) to install the new Meridian Option 11C Compact system. Complete each step as described before proceeding with the next step. Check off the box located in the left margin next to each step as it is completed.

References are made to other chapters in this guide in order to provide additional information.

Procedure 1 **New system installation**

- ☐ 1 **Locate the carton containing the main cabinet and, if provided, the expansion cabinet.**
- ☐ 2 **Mount the cabinets as described in “Chapter 9 – Mounting the cabinets” on page 75.**

Make sure that they are mounted according to the equipment layout plan.

Make sure that they are securely mounted.

- ☐ 3 **Install the cabinet ground wire for the main cabinet and expansion cabinet (if provided) as described in “Chapter 10 – Installing the system ground” on page 81.**
- Make sure that a minimum #6 AWG ground wire is used.
- Tag the main ground connection at the ground source to ensure that it is not accidentally disconnected.
- Make sure to test the ground.
- ☐ 4 **Install the power supplies in each cabinet as described in “Chapter 11 – Installing the power supply” on page 85.**
- Make sure the circuit breaker on each power supply is in the OFF position.
- Check the option switches on each power supply to make sure that they are correctly set.
- ☐ 5 **Skip this step if this is a single-cabinet system (no expansion cabinet) and go to Step 6 on [page 70](#).**
- Install and connect the fiber optic interfaces and cable between the two cabinets as described in “Chapter 12 – Adding an expansion cabinet” on page 91.**

WARNING

The fiber optic interface product used in Option 11C Compact is considered safe. However, as a precaution do not view the optical port or the end of fiber optic cable. Under certain conditions (such as during cable testing or under light magnification) the cable or port may expose the eye beyond the limits of Maximum Permissible Exposure recommended in some jurisdictions. Do not remove protective caps or plugs until ready to connect the cable.

- ☐ 6 **Install the Software Daughterboard and the Security Device on the NTMW01 SSC Card as described in “Chapter 13 – Installing the circuit cards” on page 103.**

- ☐ **7** **Install the NTMW01 SSC card and the remaining circuit cards as outlined in the card slot assignment plan. Refer to “Chapter 13 – Installing the circuit cards” on page 103.**

Make sure all circuit cards are inserted in their assigned slots.

Make sure that the proper software daughterboard and the security device is installed on the NTMW01 SSC card.

Make sure a Fiber Expansion daughterboard is installed on the NTMW01 SSC card for the expansion cabinet (if equipped).

Make sure that circuit cards equipped with option switches or plugs are properly set.

- ☐ **8** **Install the cross-connect terminal. Refer to “Chapter 14 – Installing and connecting the cross-connect terminal” on page 113.**

Install the cross-connect terminal as shown on the equipment layout plan.

Allow space to connect up to six NE-A25B cables from each cabinet.

Allow for additional cables at the cross-connect terminal if any slots are left vacant in preparation for future expansion.

Note: Each line or trunk card requires an NE-A25B cable.

Don't forget to attach designations to the terminal blocks to identify the cables.

- ☐ **9** **Install the cables from the faceplate connector on each line and trunk card in the cabinet to the cross-connect terminal. Refer to “Chapter 14 – Installing and connecting the cross-connect terminal” on page 113.**

Tag the cables for easy identification.

Install the cables neatly.

There should be one NE-A25B cable for each line or trunk card in the cabinet.

- ☐ 10 **Connect the SDI interfaces on the SSC card to the appropriate SDI port cables. If required, connect the ethernet cable to the ethernet interface connector in the main cabinet. Refer to “Chapter 15 – Installing and connecting SDI and ethernet ports” on page 117.**

Make sure the baud rate and device option settings are properly set.

If the equipment operates in DTE mode, make sure that the A0601396 or A0601397 Modem eliminator is installed.

Connect communication equipment such as TTY terminals and modems to the SDI cables.

- ☐ 11 **Start up and test the system as described in “Chapter 16 – Starting up and testing the system” on page 129.**

Check all connections and make sure that the circuit cards are properly installed.

Make sure that the circuit breaker in each cabinet is set to ON.

If the system is equipped with an expansion cabinet, check the fiber related LEDs on the SSC card.

- The LED for the Expansion Daughterboard should be **green**.
- If it is **red** (disabled indication);
Load overlay program 135 and enter ENL FL1 to enable the expansion cabinet.
- If the LED is **yellow** (fault indication):
Check the fiber optic cable to make sure that it is properly connected and not damaged.

- ☐ 12 **Connect the M2616 or M2008 administration and maintenance telephone equipped with a display. Configure it as Model 99. Refer to “Chapter 17 – Connecting the telephones and attendant console” on page 147.**

Make sure that it is activated as a model 99.

- ☐ 13 **Install (if not previously installed) and activate the telephones. Refer to “Chapter 17 – Connecting the telephones and attendant console” on page 147.**

Note: Make sure that user guides provided with telephone sets are left with the telephone. This ensures that the telephone set user will understand how to use the features provided by the Option 11C Compact system.

Use the administration telephone to set the default models and default numbering plan.

Configure any custom telephone models which may be required.

Make sure the wiring to each telephone is properly connected.

Make sure all the telephones are in their correct location.

Make sure that user guides provided with telephone sets are left with the telephone.

Make sure that all the required feature key caps are installed on the phones.

Make sure that the correct features are assigned to each telephone and are functioning.

- ☐ 14 **Connect the trunks to the system as described in “Chapter 18 – Connecting the trunks” on page 169.**

Make sure that the wiring to each trunk is properly connected.

Make sure that the trunks are correctly assigned.

Make sure that all the trunks are working properly.

- ☐ 15 **Perform a system backup, using overlay 43.**

Dump or copy the configuration data to the primary and backup flash drives using the EDD command

- ☐ 16 **Install any remaining equipment, such as external alarms (Refer to “Chapter 19 – Connecting an external alarm” on page 181) and the Meridian Mail feature (“Chapter 20 — Entrepreneur Mail installation and maintenance” on page 185).**

- ☐ 17 **Replace cabinet covers.**

End of Procedure

Chapter 9 – Mounting the cabinets

General information

[Procedure 2 on page 76](#) describes how to mount cabinets on a wall.

Earthquake bracing

If the Meridian 1 Option 11C Compact system cabinet requires earthquake bracing, refer to “Chapter 6 – Bracing cabinets against earthquakes” on page 57 before continuing.

Mounting the cabinet on a wall

Items required

The following is needed to mount the cabinet:

- the equipment layout plan as described in the “Equipment layout plan” on page 36
- the mounting bracket supplied with each cabinet
- screws provided or other appropriate fasteners to secure the mounting bracket and cabinet to the wall
- a 3/4 in. (20 mm) sheet of plywood secured to the wall

CAUTION

A fully loaded cabinet weighs up to 60 lb (28 kg). Make sure that the equipment is securely fastened to the wall. Use fasteners that are designed to hold securely in the type of surface chosen to support the equipment. When using 3/4 in. (20 mm) plywood or other similar material as a backboard, make sure that it is anchored directly to the wall studs at a minimum of six locations.

Procedure 2 Wall mounting

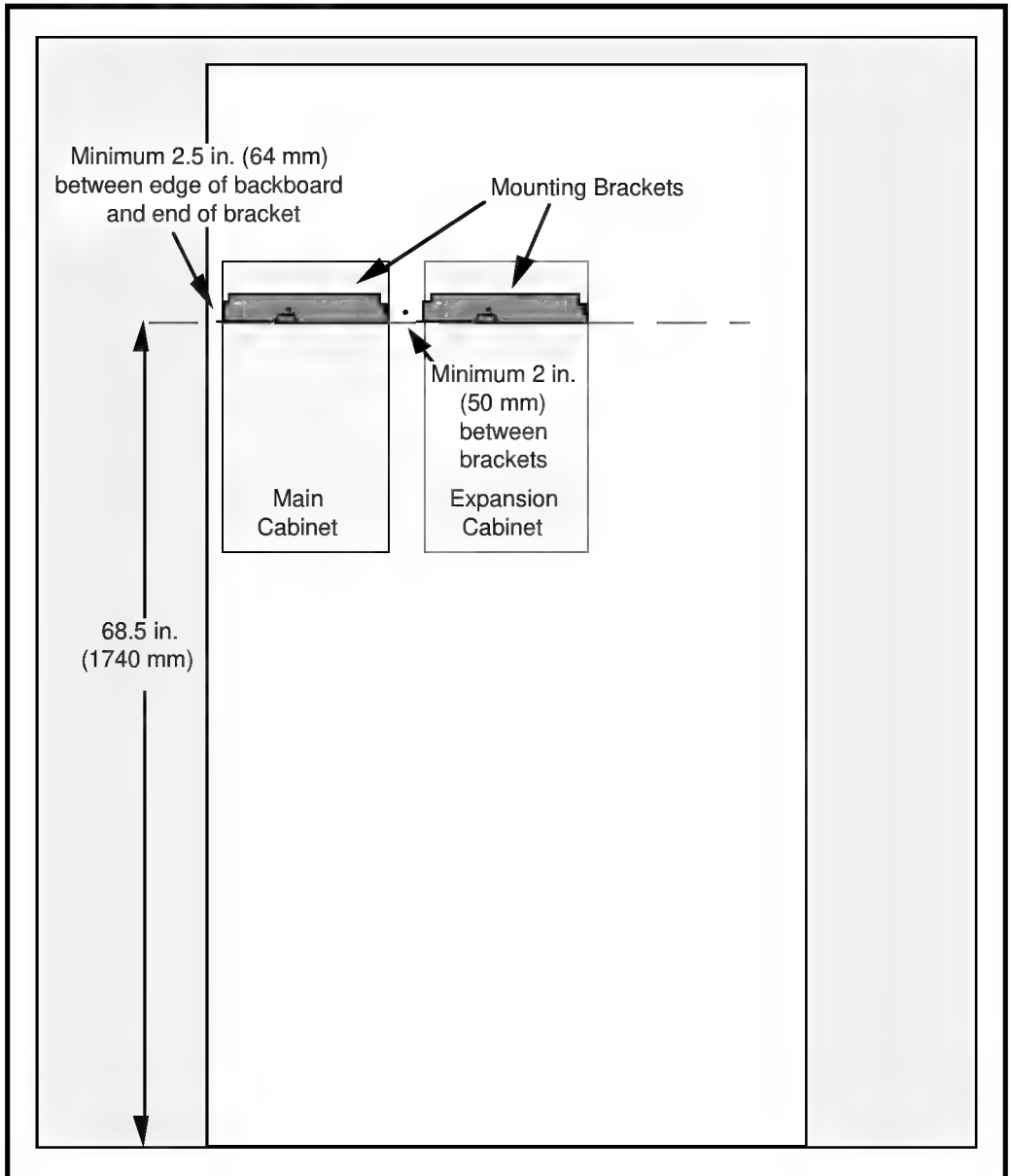
Note: If adding a cabinet next to an existing installed cabinet, start at Step 4.

- 1 **Draw a level line on the plywood backboard indicating where the mounting brackets for each system cabinet will be located.**
Refer to the equipment layout plan and [Figure 12](#) for measurements.
- 2 **Locate the mounting bracket and mounting screws shipped with each cabinet.**
- 3 **Rest the bottom of the bracket on the line drawn for the main cabinet and fasten the mounting bracket to the wall with the screws provided (or other suitable fasteners).**

Make sure that:

- the end of the mounting bracket is at least 2.5 in. (64 mm) from the edge of the plywood backboard ([Figure 12](#))
- the mounting bracket is even with the line drawn
- the hook on the bracket is facing upward.

Figure 12
Mounting Bracket position



- 4 Rest the bottom of the bracket on the line drawn for the expansion cabinet, and fasten the mounting bracket to the wall with the screws provided (or other suitable fasteners).**

The minimum space between cabinets is 2 in. (50 mm). Make sure the mounting bracket is even with the line drawn, and that the hook on the bracket is facing upward.

- 5 Remove the main cabinet (or expansion cabinet if the main cabinet has been installed) from its carton and remove its front cover.**

The front cover is held in place by magnetic latches and a locking screw (see [Figure 13](#)). If the locking screw is in the locked position, use a screwdriver and turn counterclockwise 90° to the unlocked position.

Grasp the sides of the cover and pull the top outwards, then lift it upward to remove it from the cabinet.

Note: The bottom of the front cover is supported but not secured to the cabinet. Be careful not to drop it.

WARNING

An empty cabinet weighs 32 lb (14.5 kg). Obtain help to lift the cabinet if necessary.

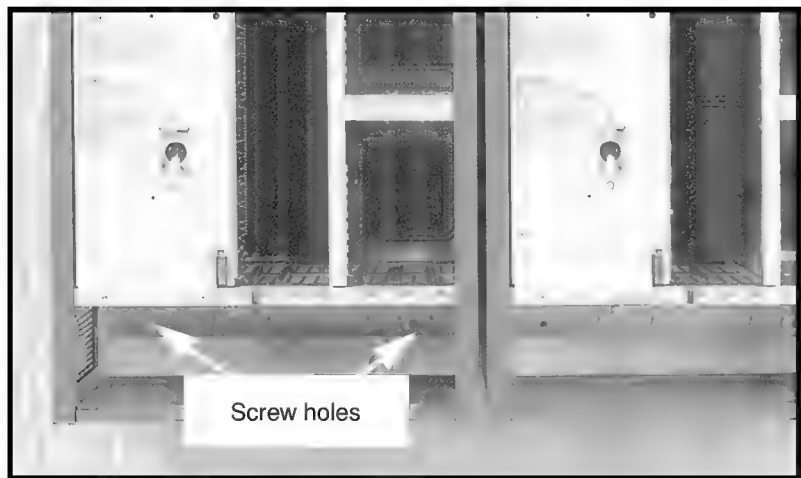
- 6 Lift the cabinet and hang it on the mounting bracket hook.**
- 7 Locate the two screw holes at the bottom towards the rear of the cabinet. See [Figure 14](#).**
- 8 Adjust the cabinet so that it is straight and level. Fasten the bottom of the cabinet to the wall with the two screws provided with the cabinet.**

End of Procedure

Figure 13
Front cover locking screw



Figure 14
Securing the cabinet to the wall



Chapter 10 – Installing the system ground

General information

[Procedure 3 on page 82](#) of this Chapter describes how to install and connect the ground source to the Meridian 1 Option 11C Compact cabinets. Refer to “Grounding requirements” on page 20 for detailed information about grounding requirements.

WARNING

Proper grounding is extremely important.

Failure to complete the following steps could result in a system that is:

- unsafe for personnel using the equipment
- not protected from lighting or power surges
- subject to service interruptions.

Insulated ground wire must be used for system grounding.

Cabinets powered by the same service panel

In two-cabinet systems, a #6 AWG ground wire is connected from one cabinet to the other. The main cabinet is in turn connected to a ground source (the isolated ground bus in the AC service panel).

Cabinets powered by different service panels

If both cabinets in a two-cabinet installation cannot be powered from the same service panel, each one must be grounded separately back to the service panel that supplies it.

Grounding instructions for cabinets

The following procedure describes how to ground the Option 11C Compact system cabinets. Repeat the steps for each cabinet installed in the system.

Procedure 3 Grounding cabinets

- 1 **If the cabinet is equipped with a power supply unit, make sure that the AC power cord is disconnected from the power outlet.**

WARNING

Power should never be connected to a cabinet that is not properly grounded.

- 2 **In two cabinet systems, install a #6 AWG ground wire from one of the ground lugs in the main cabinet to one of the ground lugs in the expansion cabinet.**

Connect the ground wire to the ground lug located in the bottom of the cabinet (Refer to [Figure 15](#)).

Route the ground wire through the opening at the bottom rear of the cabinet.

- 3 **Install a #6 AWG ground wire from the remaining ground lug in the main cabinet to a suitable ground source (the ground bus in the AC power service panel).**

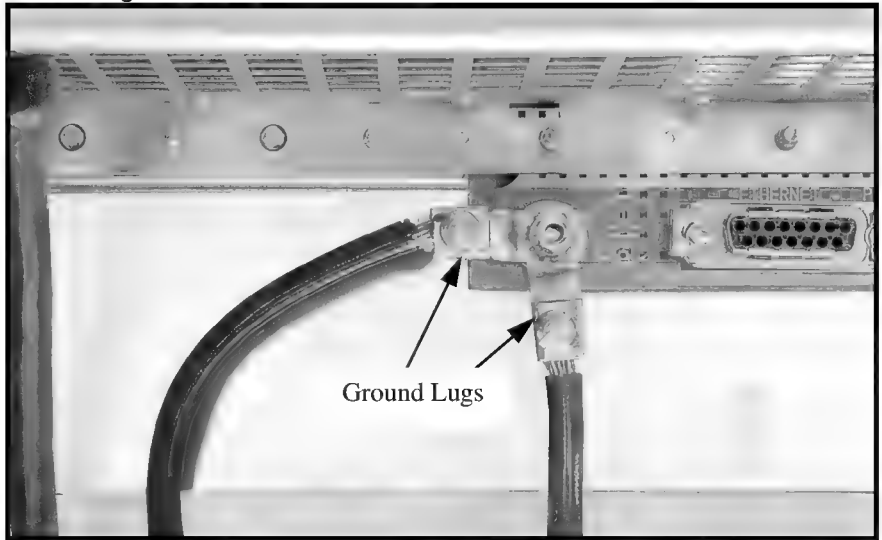
WARNING

The connection in the AC power service panel should be performed by a qualified technician or electrician.

- 4 **Place a DO NOT DISCONNECT tag on the ground wire at the service panel.**

End of Procedure

Figure 15
Ground lugs in the NTMW08 cabinet



Chapter 11 – Installing the power supply

General information

[Procedure 4 on page 88](#) describes how to install the power supply unit used in the Meridian 1 Option 11C Compact system cabinets. [Figure 16 on page 86](#) shows the location of the power supply unit in the cabinet.

Power supplies

An NTMW11 ac power supply is required with its appropriate power line cord for each cabinet.

Power supplies are shipped separate from the cabinets.

Switch settings

The power supplies are equipped with a series of switches which must be set before the units are installed in the cabinet (Refer to [Figure 17](#)).

Figure 16
Power supply location — main and expansion cabinets

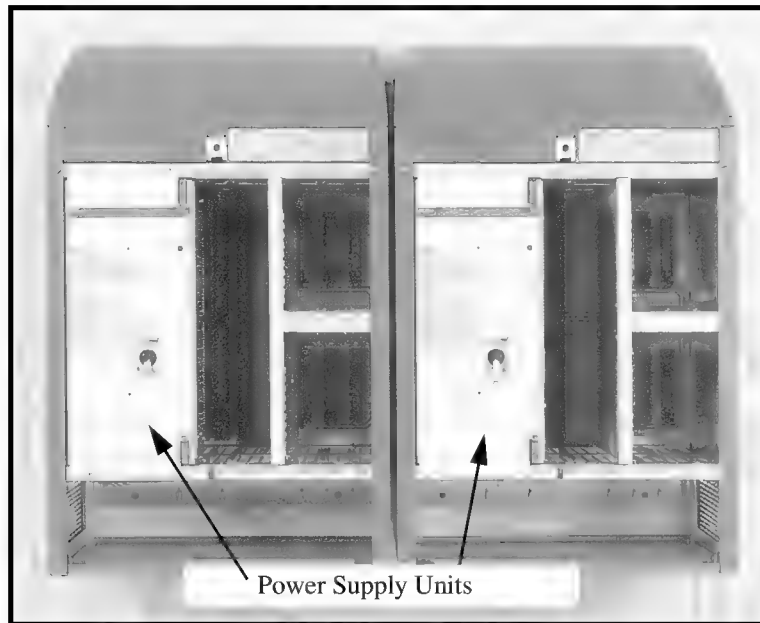
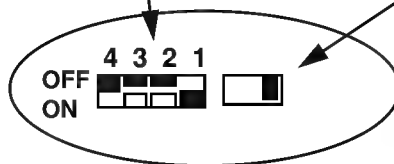


Figure 17
NTMW11 power supply switch settings

	SW1	SW2	SW3	SW4
Message Waiting				
-150V	ON			
-120V	OFF			
Ringling				
86VRMS		OFF	OFF	OFF
80VRMS		ON	OFF	OFF
75VRMS		OFF	ON	OFF
70VRMS		OFF	OFF	ON

Frequency	Setting
50 Hz	
25 Hz	
20 Hz	



Switches located at top inside unit
 Unseat unit to set switches
 Set switch in lower position for ON

Example:

The setting for North America is normally:

-150V for message waiting

and

86VRMS 20 Hz for ringling



AC power supply installation

AC power requirements

A non-switched dedicated ac power outlet installed within 6 ft (1830 mm) of each cabinet is required, with:

- one non-switched dedicated outlet per cabinet with:
 - Voltage: Recommended 100 to 240 volts
Maximum limits 90 and 250 volts
Single phase
 - Frequency: 50 or 60 Hz
 - Power (I/P Max): 750VA

Refer to “Commercial power requirements” on page 23 for detailed information about power requirements.

WARNING

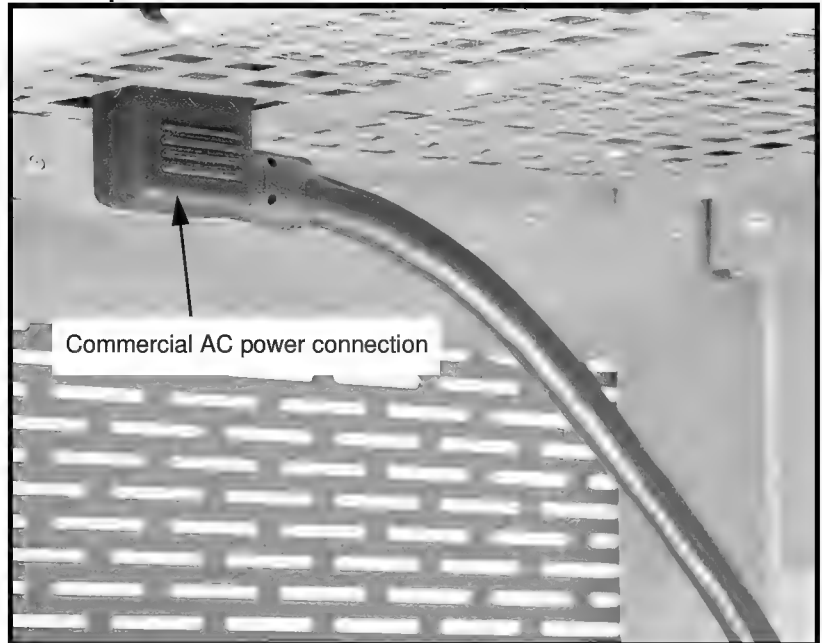
Wait at least five minutes after power to the unit is switched off before removing the unit from the cabinet. Make sure that the power cord is disconnected.

Procedure 4

Installing the NTMW11 power supply

- 1 Set the AC breaker on the front of the power supply to the OFF position
- 2 Make sure that the switches on the power supply are properly set as shown in [Figure 17](#) on [page 87](#).
- 3 Insert the power supply into the first slot on the left of the card shelf (Refer to [Figure 16](#)).
- 4 Lock it into place with the four locking screws.
- 5 Route the power line cord up through the opening at the rear bottom of the cabinet.
- 6 Attach the power line cord to the connector on the left side of the power supply (see [Figure 18](#)).

Figure 18
NTMW11 power cable connection



- 7 Test the ground of each system cabinet using the following procedure.**
- a** Set the circuit breakers feeding the AC outlet used to power the cabinet to OFF.
 - b** Connect the power line cord to the NTMW11 main cabinet power supply.
 - c** Using an ohmmeter, measure the resistance from the ground pin on the line cord to the ground receptacle on the AC outlet. The resistance must be less than 0.25 Ω .
If the cabinets are powered from different service panels, the ground must be traced back to the panel serving the cabinet.
 - d** Reset the circuit breaker once the ground connection is verified.

————— *End of Procedure* —————

Chapter 12 – Adding an expansion cabinet

General information

[Procedure 5 on page 93](#) of this chapter describes how to install expansion cabinets using the 10 m (33 ft) plastic fiber optic cable.

Cabinet configurations

Cabinets are designed to be mounted on a wall. Refer to the “Equipment layout plan” on page 36 for details about equipment layout planning.

Fiber optic equipment

The following fiber optic equipment is required when adding an expansion cabinet:

- **A0632902 Plastic Fiber Optic Cable**
This is a 10 m (33 ft) long cable used as a connection between the two cabinets.
- **NTDK22 Fiber Expansion daughterboard**
Mounts on the NTMW01 SSC card to provide a fiber optic cable interface connection in the main cabinet.
- **NTMW10 Fiber Receiver card**
Mounts in the expansion cabinet to provide a fiber optic cable interface connection in the expansion cabinet.

CAUTION

Do not staple fiber optic cable or bend it beyond a minimum 35 mm bend radius (90° soft bend).

CAUTION

Incorrectly connected fiber optic cables may cause the following problems:

- a series of repetitive fault indicating messages
- a complete failure of the expansion cabinet

If fault indicating messages appear, check the fiber optic cable connections.

Since messages are stored in a buffer, they may continue to be displayed until the buffer is empty. After checking the cable connections, wait a couple of minutes for the messages to stop.

Grounding

Grounding for the expansion cabinet is provided by a #6 AWG ground wire installed between the main and expansion cabinets.

Note: It is preferable that all cabinets on a site be powered from the same power panel.

For more information on grounding, refer to “Grounding requirements” on page 19.

Power

Each cabinet requires a dedicated outlet. All outlets should, if possible, be connected to the same power panel. Refer to “Grounding requirements” on page 19 for more information about power requirements.

Procedure 5
Adding an expansion cabinet

- ☐ **1 Mount the expansion cabinet as described in “Chapter 9 – Mounting the cabinets” on page 75.**

Make sure that it is mounted according to the equipment layout plan.

Make sure that it is securely mounted.

Note: The distance between the cabinets is limited by the length of the A0632902 Plastic Fiber Optic Cable, which is 10 m (33 ft) long.
- ☐ **2 Install the cabinet ground wire as described in “Chapter 10 – Installing the system ground” on page 81.**

Make sure that a minimum #6 AWG ground wire is used.

Make sure to test the ground.
- ☐ **3 Install the power supply as described in “Chapter 11 – Installing the power supply” on page 85.**

Make sure the circuit breaker on the power supply is in the OFF position.

CAUTION

Static electricity can damage the components of power supplies and circuit cards. Wear an anti-static wrist strap or, if one is not available, touch the frame of the cabinet before handling the power supplies or other circuit cards.

Check the option switches on the power supply to make sure that they are correctly set.

WARNING

The fiber optic interface product used in Meridian 1 Option 11C Compact is considered safe. However, as a precaution do not view the optical port or the end of fiber optic cable. Under certain conditions (such as during cable testing or under light magnification) the cable or port may expose the eye beyond the limits of Maximum Permissible Exposure recommended in some jurisdictions. Do not remove protective caps or plugs until ready to connect the cable.

4 Connect the fiber optic cable to the connector on the Fiber Receiver card as shown in [Figure 19](#) on [page 98](#).

An A0632902 Plastic Fiber Optic Cable is used to connect the main cabinet to an expansion cabinet.

Do not staple or twist fiber optic cable. Do not bend it beyond a minimum 35 mm bend radius (90° soft bend).

Remove the two protective plugs from the connectors on the Fiber Receiver card.

Connect the cable to the NTMW10 Fiber Receiver card making sure that the 'V' shaped groove on the cable connector is facing inward and that the connector is fully seated. See [Figure 20](#) on [page 99](#).

The mark (if equipped) on the connector should not be visible when properly connected.

Wind the excess fiber optic cable on the cable storage device located on the component side of the Fiber Receiver card (see [Figure 19](#) on [page 98](#)).

5 If not already done, install the circuit cards in the expansion cabinet according to the card slot assignment plan. Refer to "Chapter 9 – Mounting the cabinets" on [page 75](#).

Make sure all circuit cards are inserted in their assigned slots.

Make sure that the NTMW10 Fiber Receiver card is installed in the Fbr Rx slot of the new expansion cabinet.

Make sure that circuit cards equipped with option switches or plugs are properly set.

- ☐ **6** **Install or expand the cross-connect terminal to accommodate the new expansion cabinet. Refer to “Chapter 14 – Installing and connecting the cross-connect terminal” on page 113.**

Install the cross-connect terminal as shown on the equipment layout plan.

Allow space to connect up to six NE-A25B cables from each cabinet.

Allow for additional cables at the cross-connect terminal if any slots are left vacant in preparation for future expansion.

Note: Each line or trunk card requires an NE-A25B cable.

Don't forget to attach designations to the terminal blocks to identify the cables.

- ☐ **7** **Install the cables from the cabinets to the cross-connect terminal. Refer to “Chapter 14 – Installing and connecting the cross-connect terminal” on page 113.**

Tag the cables for easy identification.

Install the cables neatly.

There should be one NE-A25B cable for each line or trunk card in the cabinet.

Connect and terminate the AUX cable.

- ☐ **8** **If required, connect the SDI cable for the Fiber Receiver card. Refer to “Chapter 15 – Installing and connecting SDI and ethernet ports” on page 117.**

Make sure the baud rate and device option settings are properly set.

If the equipment operates in DTE mode, make sure that the A0601397 Modem eliminator is installed.

Connect communication equipment such as TTY terminals and modems to the SDI cables.

☐ 9 **Power up the new expansion cabinet.**

Check all connections and make sure that the circuit cards are properly installed.

Connect the power line cords.

Set the breakers on the power supplies in the cabinet and reserve power supply (if provided) to ON.

Make sure that the circuit breakers in each cabinet are set to ON.

The following Steps 10 through 16 are performed at the main cabinet.

Note: Perform the following steps only if the Fiber Expansion Daughterboard was not previously installed and connected to the fiber optic cable at the main cabinet. The following steps apply only when adding an expansion cabinet to an existing working system.

☐ 10 **Remove the cover from the main cabinet.**

CAUTION

The following steps (Steps 11 through 15) in this procedure will interrupt service on the entire Option 11C Compact system for approximately 20 minutes.

☐ 11 **Set the circuit breaker on the power supply in the main cabinet to OFF.**

☐ 12 **Unseat the NTMW01 SSC card. Install a Fiber Expansion daughterboard on the SSC card as described in “Chapter 13 – Installing the circuit cards” on page 103.**

Connect the Fiber Expansion Daughterboard to the connector labeled ‘Fiber 1’.

WARNING

The fiber optic interface product used in the Option 11C Compact system is considered safe. However, as a precaution do not view the optical port or the end of fiber optic cable. Under certain conditions (such as during cable testing or under light magnification) the cable or port may expose the eye beyond the limits of Maximum Permissible Exposure recommended in some jurisdictions. Do not remove protective caps or plugs until ready to connect the cable.

- ☐ **13 Connect the fiber optic cable to the Fiber Expansion Daughterboard on the NTMW01 SSC card as shown in [Figure 21](#) on [page 100](#).**

Remove the two protective plugs from the connectors on the Fiber Expansion Daughterboard.

Connect the fiber optic cable to the Fiber Expansion Daughterboard making sure that the 'V' shaped groove on the cable connector is facing outward and that the connector is fully seated. The mark (if equipped) on the connector should not be visible when properly connected. See [Figure 22](#) on [page 101](#).

- ☐ **14 Insert the NTMW01 SSC card in the CPU slot of the main cabinet.**
- ☐ **15 Set the circuit breaker on the power supply in main cabinet to ON.**

The Option 11C Compact system reloads (SYSLOAD) and service is restored.

Check the fiber related LEDs on the SSC card.

- The LED for the Expansion Daughterboard should be **green**.
- If it is **red** (disabled indication);
Load overlay program 135 and enter ENL FL1 to enable expansion cabinet.
- If the LED is **yellow** (fault indication):
Check the fiber optic cable to make sure that it is properly connected and not damaged.

Check system time and date using LD 2. Reset if required.

- ☐ **16 Reinstall covers.**

End of Procedure

Figure 19
Fiber optic cable connector on Fiber Receiver card

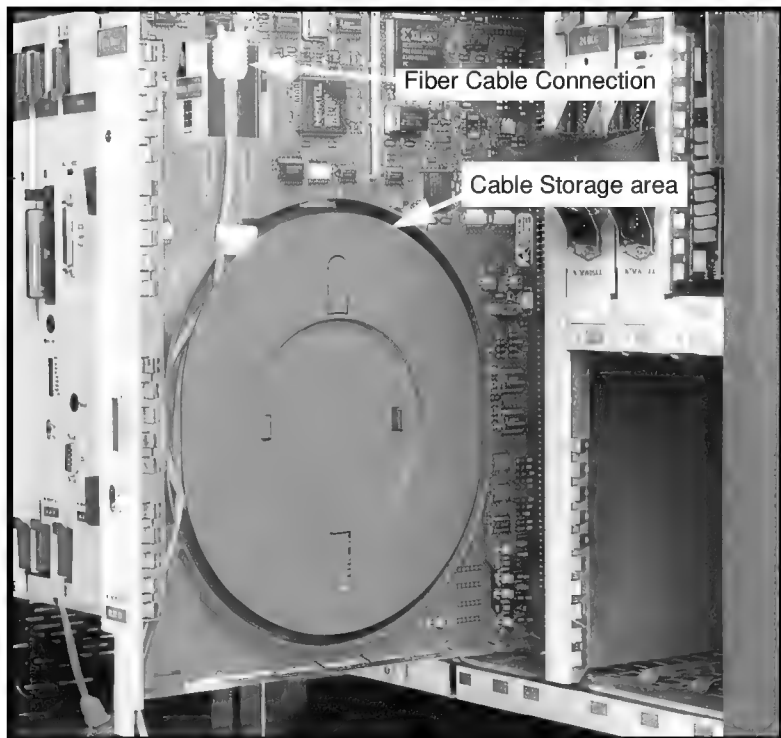


Figure 20
Fiber optic cable connection

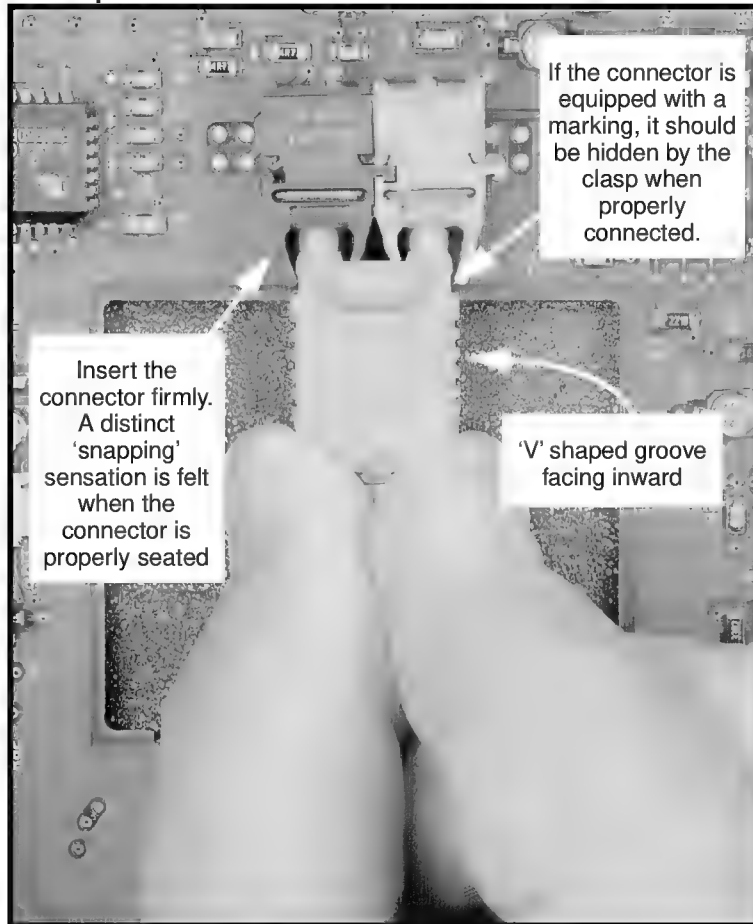


Figure 21
Fiber optic cable connection

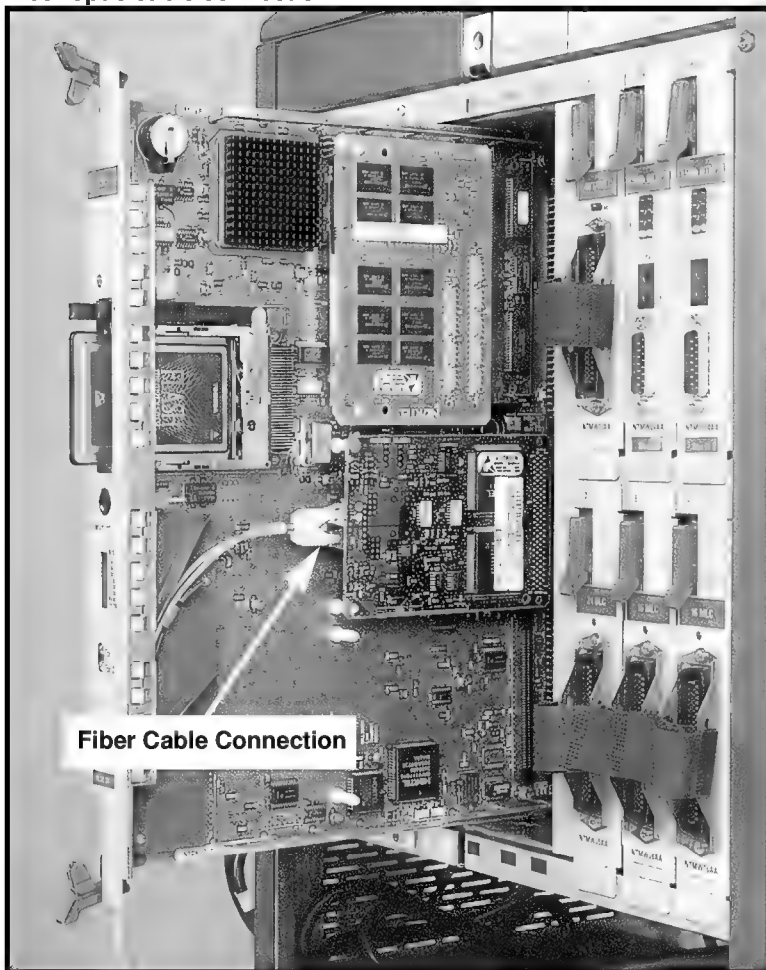
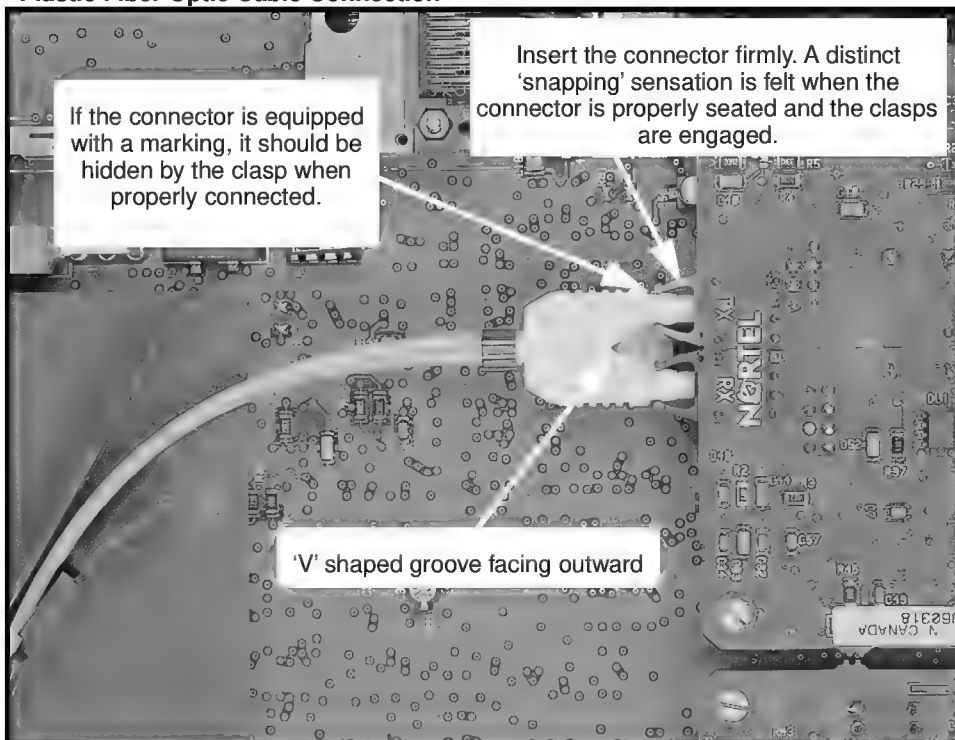


Figure 22
Plastic Fiber Optic Cable Connection



Chapter 13 – Installing the circuit cards

General information

This chapter describes how and where to install the various circuit cards used in the Meridian 1 Option 11C Compact system.

Some circuit cards are equipped with option switches, plugs and daughterboards.

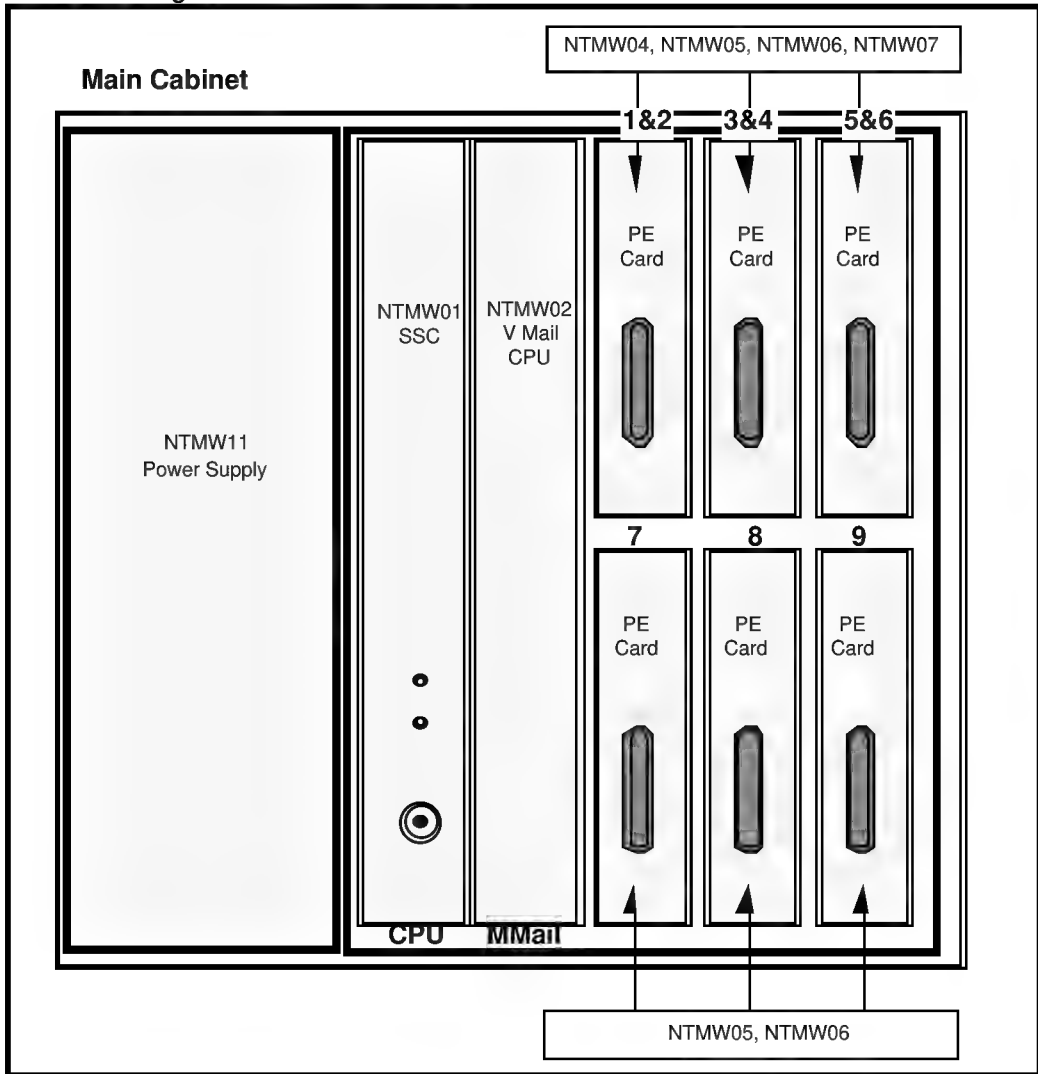
Always handle circuit cards with care to avoid damaging them due to static electricity. Always store unused circuit cards in an anti-static bag or the original packaging.

CAUTION

Static electricity can damage the components of power supplies and circuit cards. Wear an anti-static wrist strap or, if one is not available, touch the frame of the cabinet before handling the power supplies or other circuit cards.

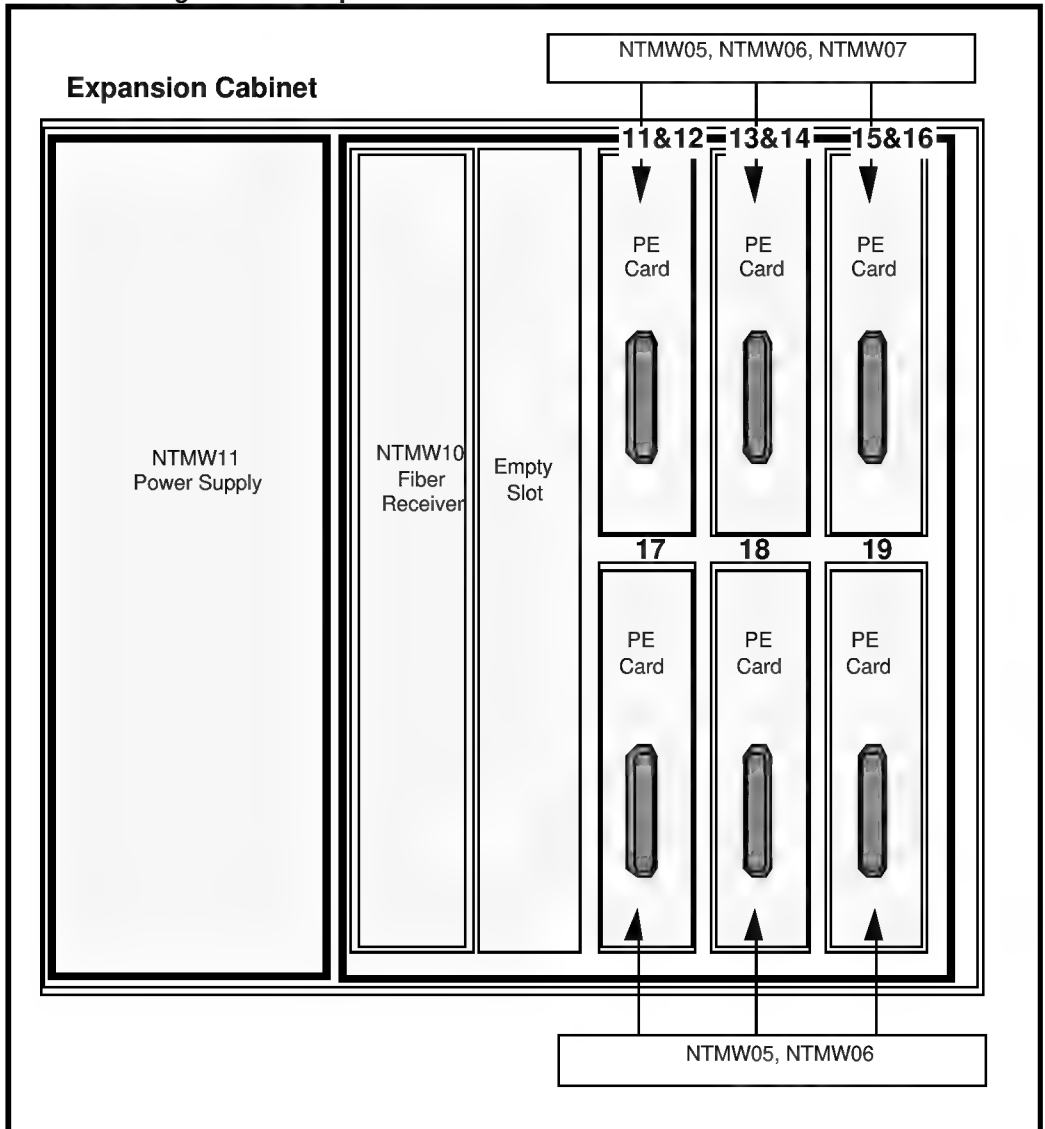
The [Figures 23](#) and [24](#) show the shelf assignments for the circuit cards in the main and expansion cabinets.

Figure 23
Card slot assignments — main cabinet



Note: The NTMW04 DTI/PRI circuit card must reside in the main cabinet, slots 1 & 2, 3 & 4 or 5 & 6 (upper slots). Meridian Mail Compact, requires the MM slot in the main cabinet.

Figure 24
Card slot assignments — expansion cabinets



Circuit cards

The following circuit cards are used in the Option 11C Compact system.

NTMW01 Small System Controller (SSC) card

Procedure 6

Installing the SSC card

- 1 **Install the NTDK21 Software Daughterboard and the Security Device on the SSC Card as shown in [Figure 25](#).**

CAUTION

The NTMW01 SSC card is equipped with components on both sides of the circuit board. Be careful not to damage any of the components when handling the card.

- 2 **If required, install a Fiber Expansion daughterboard on the SSC card for an expansion cabinet.**

Connect the Fiber Expansion Daughterboard to the connector labeled 'Fiber 1' (top connector).

WARNING

The fiber optic interface product used in Meridian 1 Option 11C Compact is considered safe. However, as a precaution do not view the optical port or the end of fiber optic cable. Under certain conditions (such as during cable testing or under light magnification) the cable or port may expose the eye beyond the limits of Maximum Permissible Exposure recommended in some jurisdictions. Do not remove protective caps or plugs until ready to connect the cable.

- 3 Connect the fiber optic cable to the Fiber Expansion Daughterboard on the NTMW01 SSC card as shown in [Figure 25](#).**

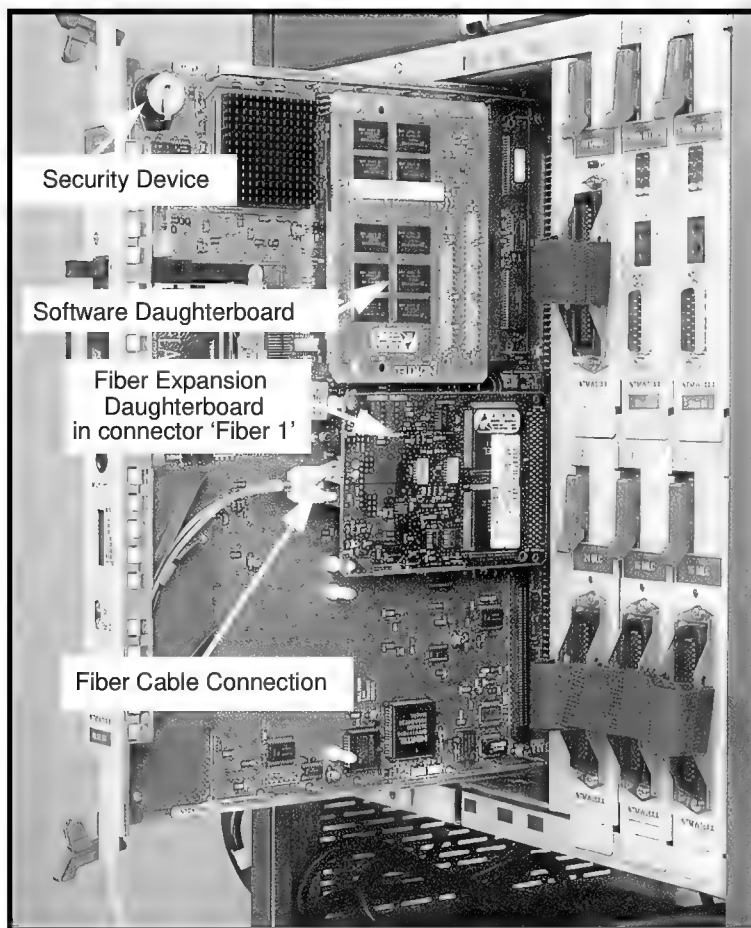
Remove the two protective plugs from the connectors on the Fiber Expansion Daughterboard.

Connect the cable to the Fiber Expansion Daughterboard making sure that the 'V' shaped groove on the cable connector is facing outward and that the connector is fully seated. The black mark on the connector should not be visible when properly connected.

- 4 Insert the NTMW01 SSC card in the CPU slot (slot SSC) of the main cabinet.**

End of Procedure

Figure 25
NTMW01 SSC card



NTMW02 Meridian Mail CPU

The NTMW02 Meridian Mail CPU card can be equipped with up to two NTMW03 4 Port Mail DSP daughterboard, each providing four ports of voice mail (maximum eight ports). Refer to the *Meridian Mail Compact documentation* for detailed descriptions and to “Chapter 20 — Entrepreneur Mail installation and maintenance” on page 185 for installation instructions.

NTMW04 DTI/PRI

The NTMW04 DTI/PRI Card supports 1.5 Mb digital trunks and can run in free run or slave operation. Refer to the *1.5 Mb Administration and Maintenance Guide* for further details.

NTMW05 24DLC

The NTMW05 24 Port Digital Line Card supports 24 voice ports, Aries telephone sets and M2250 Attendant Consoles.

Procedure 7 24DLC installation

- 1 Insert the NTMW05 card in its assigned slot.**
The NTMW05 card can be installed in any peripheral equipment slot.
- 2 Connect an NE-A25B type 25 pair cable from the connector on the faceplate of the NTMW05 to the cross-connect terminal.**
- 3 Configure and enable the card using overlay programs 11 and 32.**

————— *End of Procedure* —————

NTMW06 16MLC

The NTMW06 16 Port Message Waiting Analog Line Card supports 16 analog voice ports, 500/2500-type telephones and high-voltage message waiting indicators.

Procedure 8 16MLC installation

- 1 **Insert the NTMW06 card in its assigned slot.**
The NTMW06 card can be installed in any peripheral equipment slot.
- 2 **Connect an NE-A25B type 25 pair cable from the connector on the faceplate of the NTMW06 to the cross-connect terminal.**
- 3 **Configure and enable the card using overlay programs 10 and 32.**

————— *End of Procedure* —————

NTMW07 4UT/4MLC

The NTMW07 4 Port Universal Trunk/4 Port Analog Line Card supports 4 universal analog trunk ports (loop and ground start) and four analog voice ports capable of supporting 500/2500-type telephones and high-voltage message waiting indicators.

Note: The NTMW07 Trunk/Line card can reside only in the main cabinet in slots 1/2, 3/4 or 5/6 and in the expansion cabinet in slots 11/12, 13/14 or 15/16 (upper slots).

Procedure 9 4UT/4MLC installation

- 1 **Verify jumper strap settings (see [Table 11, “Jumper Strap Settings,” on page 111](#)).**
- 2 **Insert the NTMW07 card in its assigned slot.**
- 3 **Connect an NE-A25B type 25 pair cable from the connector on the faceplate of the NTMW06 to the cross-connect terminal.**
- 4 **Configure and enable the card using overlay programs 10 for line ports, 14 for trunks and 32.**

————— *End of Procedure* —————

Table 11
Jumper Strap Settings

Trunk Types	Loop Length	Jumper Strap Settings			
		J1 n	J2 n	J3 n	J4 n
Factory Setting		Off	Off		
CO/FX/WATS	0 — 5000 ft (1525 m)				
2-way TIE (LDR)					
2-way TIE (OAID)					
DID	0 — 600 Ω			1-2	1-2
RAN: continuous operation mode	Not applicable: RAN and Paging trunks should not leave the premises.				
Paging					
Extended Range		J1 n	J2 n	J3 n	J4 n
CO/FX/WATS	> 5000 ft (1525 m)	Off	Off	1-2	1-2
2-way TIE (LDR)					
2-way TIE (OAID)					
DID	> 600 Ω	On	On	1-2	2-3
RAN: pulse start or level start modes	Not applicable: RAN and Paging trunks should not leave the premises.	Off	Off	2-3	1-2
Note: Jumper strap settings J1 n, J2 n, J3 n and J4 n apply to all trunk units. 'n' indicates the unit number (0-3). 'Off' means that no jumper strap is installed on a jumper block. Store unused straps by installing them on a single jumper pin.					

Chapter 14 – Installing and connecting the cross-connect terminal

General information

This chapter describes how to install and connect a typical cross-connect terminal to a Meridian 1 Option 11C Compact system, using the BIX cross-connect system. Although the use of the BIX system is not mandatory, it is the recommended choice.

Information about the BIX cross-connect system is found in the following publications:

- *BIX In-Building Cross-Connect System Material Description* (NTP 631-4511-100)
- *BIX In-Building Cross-Connect System Planning* (NTP 631-4511-150)
- *BIX In-Building Cross-Connect System Material Installation and Servicing* (NTP 631-4511-200)

Information about 1.5 Mb DTI/PRI related wiring and cables can be found in the *1.5Mb DTI/PRI Administration and Maintenance Guide*.

This chapter contains the following procedures:

- [Procedure 10 “Installing the cross-connect terminal” on page 114](#)
- [Procedure 11 “Connecting the cables” on page 116](#)

Terminal block requirements

The cross-connect terminal requires sufficient connecting blocks to terminate the following wires:

- up to six 25-pair cables from each cabinet.
 - Each trunk or line circuit card requires a cable. Allow for additional cables at the cross-connect terminal if any of the six PE slots in each cabinet are initially left vacant.
- wiring from telephones and trunks

WARNING

Always use caution when installing or modifying telephone lines. Avoid installing telephone wiring during a lightning storm. Never touch uninsulated telephone wiring unless the line has been disconnected at the network interface.

Installing the cross-connect terminal

[Procedure 10](#) describes how to install the cross-connect terminal.

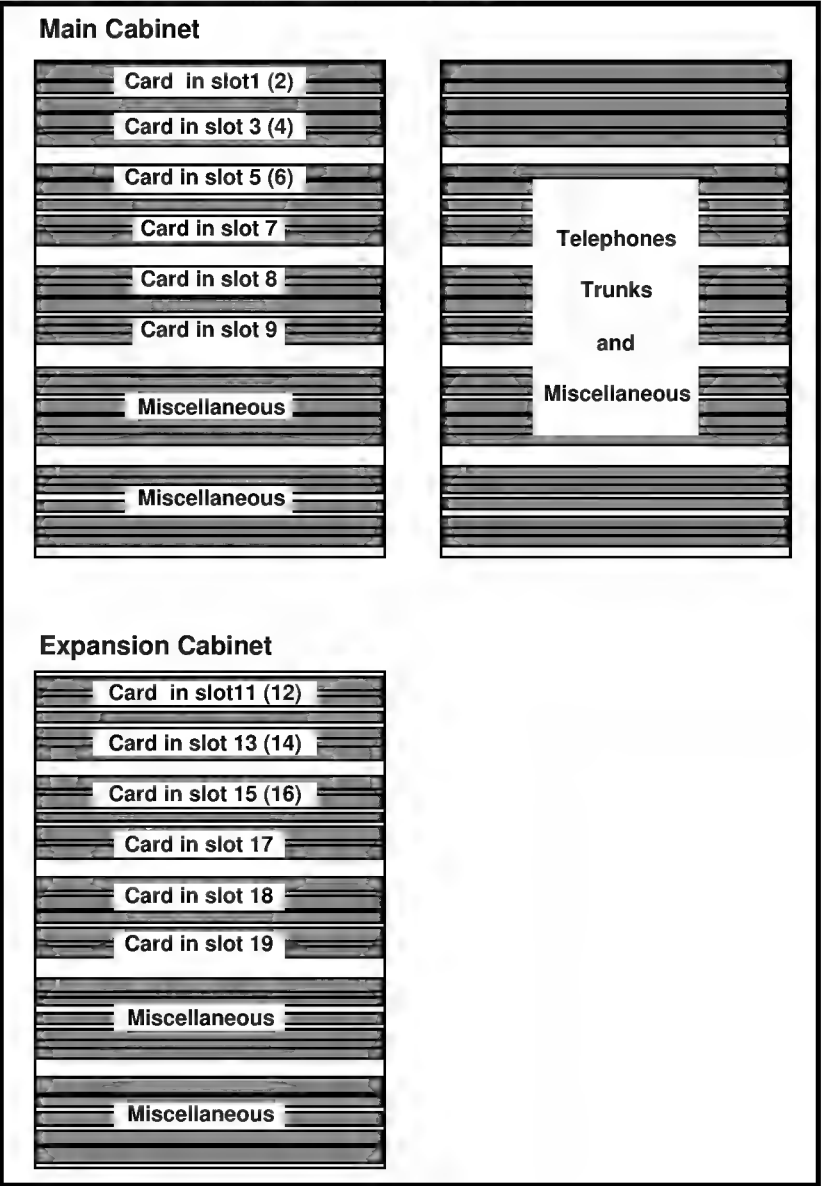
Procedure 10

Installing the cross-connect terminal

- 1 **Consult the equipment layout plan to determine where the cross-connect terminal should be located**
- 2 **Install the terminal blocks in a layout similar to that shown in the [Figure 26](#).**

If installing the BIX system, refer to *BIX Installation and Servicing* (NTP 631-4511-200).

Figure 26
Typical BIX cross-connect terminal layout



3 Attach labels on the cross-connect terminal to indicate the terminal blocks assigned to:

- 25-pair cables from the cabinets
- telephones and consoles
- trunks
- other miscellaneous equipment

Note: If installing the BIX cross-connect system, refer to *BIX Installation and Servicing* (NTP 631-4511-200) for information about labels used with these terminal blocks.

————— *End of Procedure* —————

WARNING

Always use caution when installing or modifying telephone lines. Avoid installing telephone wiring during a lightning storm. Never touch uninsulated telephone wiring unless the line has been disconnected at the network interface.

Connecting the cables

Each Option 11C Compact system cabinet requires up to six 25-pair cables. Cables are routed through the opening at the bottom rear of the cabinet.

Procedure 11
Connecting the cables

- 1 Route the cables up through the opening at the bottom rear of each cabinet.**
- 2 Connect a 25-pair cable to connector on the faceplate of each line and trunk card.**
- 3 Terminate the 25-pair cables installed at the cross-connect terminal.**

Label all the cables at the cross-connect terminal blocks according to the card slot allocation plan.

————— *End of Procedure* —————

Chapter 15 – Installing and connecting SDI and ethernet ports

General information

This Chapter describes two procedures for connecting communication devices to the Meridian 1 Option 11C Compact system.

[Procedure 12 on page 120](#) explains how to install and connect SDI ports to terminals and modems. Instructions are provided on how to access ports through the NTMW01 SSC and the NTMW10 Fiber Receiver card.

[Procedure 15 on page 128](#) provides instructions on how to install and connect an ethernet cable to the main cabinet.

Option 11C Compact system SDI ports are provided by the following cards:

- NTMW01 SSC: provides three SDI ports
- NTMW10 Fbr Rcvr card: provides one SDI port

Terminal setup instructions are given in [Procedure 14 on page 122](#).

Modem setup requirements

Modems connected to the Option 11C Compact system should be set as follows:

- CD (Carrier Detect): Active if carrier detected on incoming call
- CTS (Clear to Send): Normal operation or forced active
- Hardware and software: Disabled flow control:

The ports on the Option 11C Compact system will be disabled if devices connected to them generate extra “garbage” characters. For this reason, modems should not be used in the following modes:

- Loopback
- Auto Echo
- Self Test

Note: The SDI ports are designed for use with “dumb” modems. “Intelligent” modems may be used, however care must be taken to ensure that they do not enter into modes of operation that will send extra characters to the system.

Table 12 lists some of the problems that may be encountered.

Table 12
Modem problems

Problem	Solution
CDR is not printing on an ESDI port configured as 8 bits, no parity, and 1 stop bit.	Change the modem set-up to 7 bits, no parity, 1 stop bit, or add MTC or SCH to the ESDI user prompt.
Modem is not communicating with the Option 11C Compact system when the User is MTC, BUG or CTY (The default setting of 8 bits, no parity, 1 stop bit is incompatible with the modem).	Change the modem set-up to 7 bits or the parity to EVEN/ODD.

Installing and connecting SDI ports

NTMW01 SSC

The baud rate for port 0 is controlled by a switch setting on the circuit card's faceplate. Ports 1 and 2 are user configurable using overlay program 17.

- Port 0 is the only SDI port that can be used for software installation and upgrades.
- All three ports on the SSC card can be used to connect terminals.
- Modems should only be connected to Port 0 since it is the only port that supports Carrier Detect (CD).
- An NTBK48 3-port SDI cable must be used with the NTMW01 SSC card.

Note: The default baud rate of the SSC card is 19200 bps. When changing the DIP switch on the faceplate, make sure only one baud rate switch is set to ON (Refer to [Table 13](#)).

Table 13
Default port configuration for the NTMW01 SSC card

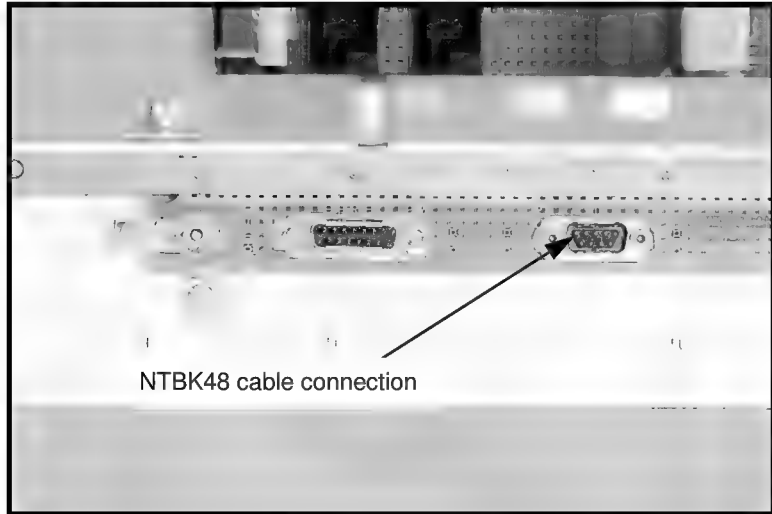
Port	Use	Baud rate	Data bits	Stop bits	Parity
0	MTC/SCH/BUG	Set by a DIP switch	8	1	None
1	MTC/SCH/BUG	1200 (See Note 1)	8	1	None
2	MTC/SCHBUG	1200 (See Note 2)	8	1	None

[Procedure 12 on page 120](#) describes how to connect a terminal, modems and other devices such as CDR devices and additional TTYs to the SSC card.

Procedure 12
Connecting SDI ports on the SSC card

- 1 **Connect the NTB48 3-port SDI cable to the 9-pin SDI connection at the bottom of the main cabinet.**

Figure 27
Cable connection



- 2 **Connect the system terminal to the cable marked “port 0” on the NTB48 3-port cable.**

A Modem Eliminator Adapter is required to connect the Option 11C Compact system to a TTY terminal.

- 3 **If the system is to be accessed remotely, connect the system modem to the cable marked “port 1” on the NTB48 cable.**
- 4 **Connect the modem to an outside line.**
- 5 **Test the modem for proper operation once the system is operating.**

Note: The remaining ports can be used for other equipment such as CDR devices or TTYs.

————— *End of Procedure* —————

NTMW10 Fiber Receiver card

The Fiber Receiver card provide one SDI port in the expansion cabinet.

The baud rate is set by a DIP switch on the card's faceplate. Other communication settings are identical to the port 0 configuration on the SSC card (Refer to [Table 13](#)).

A Fiber Receiver card port must be configured using overlay program 17 before it can be used to access overlays.

Note: Although all device numbers can be assigned to any cabinet, TTY 0, 1 and 2 are usually assigned to the main cabinet. TTY 3 is typically assigned to the expansion cabinet.

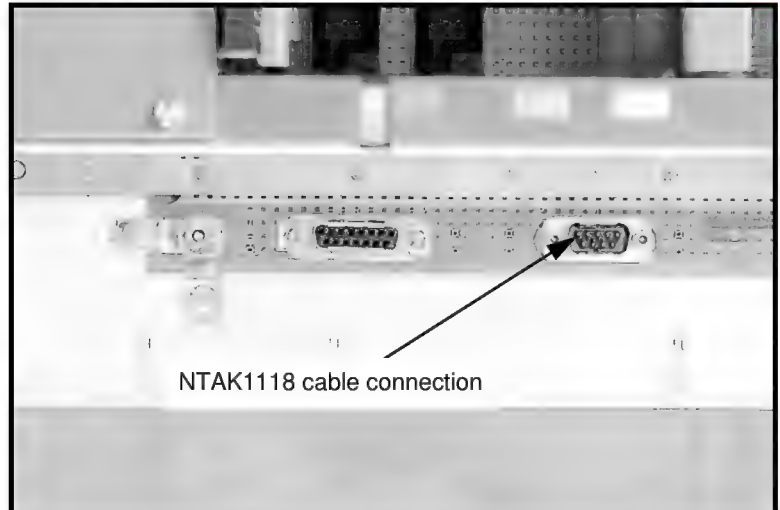
[Procedure 13](#) describes how to connect the SDI ports on Fiber Receiver cards.

Procedure 13

Connecting SDI ports to the Fiber Receiver card

- 1 Connect the NTAk1118 one-port SDI cable to the 9-pin SDI connection at the bottom of the expansion cabinet. See [Figure 28](#).

Figure 28
Cable connection



- 2 **Connect the NTAK1118 SDI cable to a TTY terminal.**
Note: A Modem Eliminator is required to connect to a terminal.
- 3 **If the system is to be accessed remotely, connect the SDI cable to the system modem.**
- 4 **Connect the modem to an outside line.**
- 5 **Test the modem for proper operation once the system is operating.**

————— *End of Procedure* —————

Terminal setup

Setup values are given in [Tables 14, 15](#) and [16](#). Use the following procedure to set up the terminal.

Procedure 14 **Setting up the terminal**

- 1 **Turn on the power for the terminal**
- 2 **Enter setup mode by pressing the <SETUP> key located on the top row of the special function keys.**
 The current setup values are displayed.
- 3 **Change the value in each field on each setup screen as necessary.**

Use the following keys to view and change setup values:

Key	Function
Arrow key	Move from field to field
<Enter>	Scroll through possible values or cause requested action to take place (depends on type of field)
<Next Screen>	Move to next setup screen
<Prev Screen>	Move back screen

- 4 Save changes by returning to the *General setup* screen, moving the cursor to the *Saved* field, and pressing *Enter*.

End of Procedure

Table 14
HP700/32 setup values

Global set-up screen			
Host Port	1	Keyboard	U.S.
Background	Dark	Message Translations	English
Screen Saver	10 Min	Setup Translations	English
Refresh Rate	72 Hz	Clear Display	
Key Click	Yes	Clear Comm	
User Set-up Screen			
Smooth Scroll	Jump scroll	Display Width	80
Cursor Type	Blink Line	Display Width Allowed	80 or 132
Cursor	Off	Char Cell Height	16
2nd Message Line	On	Clr on Width Change	Yes
Message Line	On	Aux Mode	Off
Status Line	On	Aux to Host	Off
On Line	Yes	Print Terminator=FF	No
Local Echo	Off	Logical Page Size	24
Auto Wrap	Off	Number of Pages	1
Auto Linefeed	Off		
Display Ctrl Codes	Off		
Emulation Set-up			
Emulation	VT320	Cursor Keys	Normal
Terminal Id	VT220	Print Scroll Region	Off
Control Codes	7-bit	User Features Locked	No
Characters Mode	8-bit	User Keys Locked	No
Preferred Char Set	DEC Supplemental	Data Procession Keys	No
Key Pad Mode	Application		
Port 1 Set-up			
Communications	Full Duplex	Limited Transmit	Off
Data Length	8-bits	DSRI	No
Parity	None	CTS	Ignore
Stop Bits	1	CD	Ignore
Xmit Baud	2400	Break Disconnect	170ms
RecvBaud	=Xmit	Disconnect Delay	Never
Xmit pace	Xoff	Aux printer Type	National
Recv Pace	Xoff at 128		
Port 2 Set-up			
Communications	Full Duplex	Xmit pace	Xon/Xoff
Data Length	8-bits	Recv Pace	Xoff at 128
Parity	None	Limited Transmit	Off
Stop Bits	1	Break Duration	170ms
Xmit Baud	9600	Aux Printer Type	National
RecvBaud	=Xmit		
Keyboard Set-up			
Lock Key	Caps Lock	Warning Bell	Yes
Kbd Lock Enable	Yes	Auto Answerback	Yes
Save Tabs	Yes	Answerback =	
Auto Repeat	Yes	Conceal Answerback	No
Margin Bell	Yes	<i>Do not set any tabs or programmed keys.</i>	

Table 15
VT420 setup values

Global Set-Up	
On Line	Comm1=RS232
Sessions on Comm1	70Hz
CRT Saver	Printer Shared
Display Set-Up	
80 Columns	No Status Display
Interpret Controls	Cursor Steady
Auto Wrap	3x24 pages
Jump Scroll	24 Lines/Screen
Dark Screen	Vertical Coupling
Cursor	Page Coupling
Block Style Cursor	Auto Resize Screen
General Set-up	
VT400 Mode, 7-bit Controls	Normal Cursor Keys
User Defined Keys Unlocked	No New Line
User Features Unlocked	UPSS DEC Supplemental
8-bit Characters	VT420 ID
Application Keypad	When Available Update
Communications Set-Up	
Transmit=2400	Disconnect, 2 s Delay
Receive=Transmit	Limited Transmit
Xoff=64	No Auto Answerback
8bits, No Parity	Answerback=
1 Stop Bit	Not Concealed
No Local Echo	Modem High Speed = ignore
Data Leads Only	Modem Low Speed = ignore
Printer Set-Up	
Speed=2400	8bits, No Parity, 1 Stop bit
No printer to Host	Print Full Page
Normal Print Mode	Print National Only
XOFF	No Terminator
Keyboard Set-up	
Keyboard Set-up	Local Compose
Typewriter Keys	Ignore Alt
Caps Lock	F1 = Hold
Auto Repeat	F2 = Print
Keyclick High	F3 = Set-Up
Margin Bell	F4 = Session
Warning Bell High	F5 = Break
Character Mode	,< and .> Keys
<X] Delete	<> Key
	^~Key
Tab Set-Up	
<i>Leave this screen at the default values</i>	

Table 16
VT220 setup values

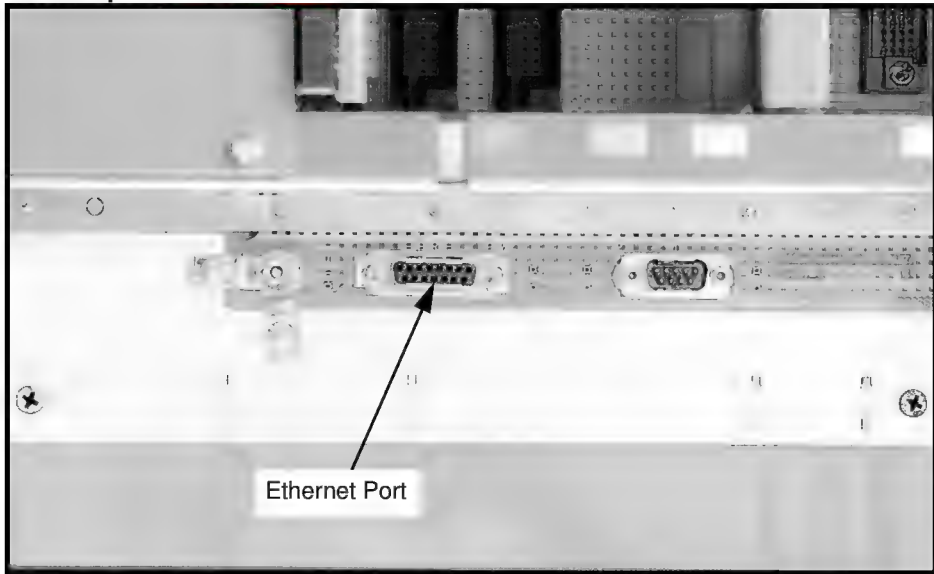
Global Set-Up	
On Line	Comm1=RS232
Sessions on Comm1	70Hz
CRT Saver	Printer Shared
Display Set-Up	
80 Columns	Light Text, Dark Screen
Interpret Controls	Cursor
Auto Wrap	Block Style Cursor
Jump Scroll	
General Set-up	
VT200 Mode, 7-bit Controls	Application Keypad
User Defined Keys Unlocked	Normal Cursor Keys
User Features Unlocked	No New Line
Multinational	
Communications Set-Up	
Transmit=2400	No Local Echo
Receive=Transmit	Data Leads Only
Xoff at 64	Disconnect, 2 s Delay
8bits, No Parity	Limited Transmit
1 Stop Bit	
Printer Set-Up	
Speed=9600	Print Full Page
Normal Print Mode	Print National Only
8bits, No Parity,	No Terminator
1 Stop bit	
Keyboard Set-up	
Typewriter Keys	Warning Bell
Caps Lock	Break
Auto Repeat	Answerback=
Keyclick High	Not Concealed
Margin Bell	
Tab Set-Up Screen	
<i>Leave this screen at the default values</i>	

Installing and connecting an ethernet cable

Ethernet connection

The Option 11C Compact system provides one 10 Mbps ethernet connection to a Local Area Network (LAN). The ethernet cable connector is located to the left of the backplane at the bottom rear of the main cabinet as shown in [Figure 29](#).

Figure 29
Ethernet port location



J7 Jumper plug

A jumper plug located on connector J7 (see [Figure 30](#) and [Figure 31](#)) on the component side of the NTMW01 SSC card must be in place for the ethernet connection to function. The card is normally shipped with the plug installed. If the ethernet connection does not appear to function properly, check the jumper plug to make sure that it is installed.

Figure 30
J7 Jumper Plug location on NTMW01 SSC card

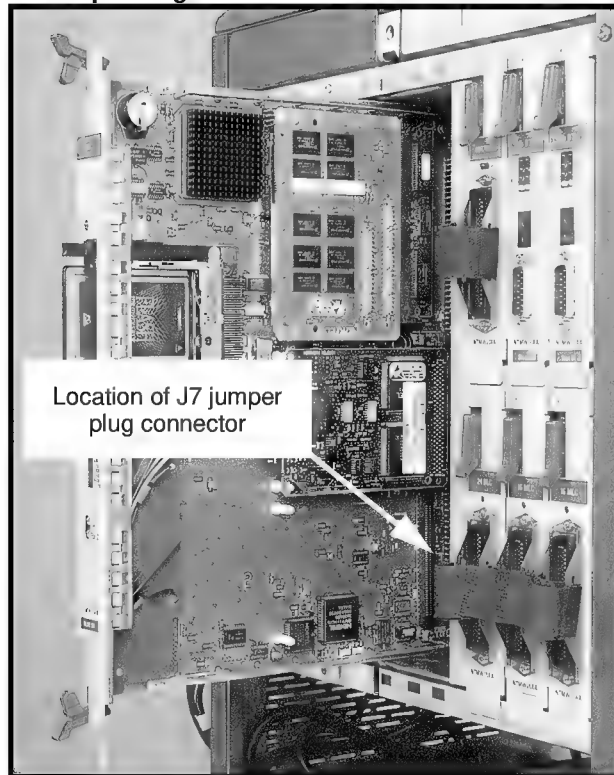
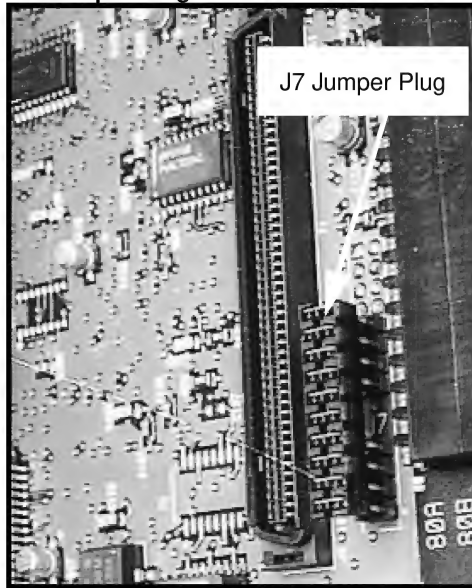


Figure 31
J7 Jumper Plug



Procedure 15
Connecting the Ethernet cable

- 1 Route the ethernet cable up through the opening at the bottom rear of the main cabinet.
- 2 Connect the cable to the 15-pin AUI connector at the bottom of the main cabinet. See [Figure 29](#).
- 3 If not previously done, configure the ethernet port in software as described in the *Software Administration Input/Output Guide*.

————— *End of Procedure* —————

Chapter 16 – Starting up and testing the system

General information

This Chapter gives an overview of the software components used in the Option 11C Compact system and describes how to start up the system and install the software.

Before continuing with the procedures outlined in this Chapter, verify that all pertinent hardware is either connected to, or installed in the system.

Overview of Software Components

Software Daughterboard

The Software Daughterboard contains all the components associated with a particular release of software including preconfigured customer database, feature sets and other pertinent databases and software. It interfaces with the system CPU through a connector mounted on the component side of the NTMW01 Small System Controller (SSC) card.

Software Delivery (PCMCIA) Card

The PCMCIA is capable of storing (or archiving) several customer databases. Specific databases can then be retrieved and customized to suit individual Meridian 1 Option 11C Compact sites.

When upgrading or modifying an existing Option 11C Compact, the PCMCIA stores a backup copy of the flash ROM while the flash ROM is being erased and re-programmed. If there is a problem during the upgrade or modification, the system can be restored to its previous state from the backup copy on the Software Delivery Card.

Once the installation or modification is completed successfully, the PCMCIA can be removed from the Small System Controller card and reused at other sites.

Software Installation Program

The Software Installation Program provides a menu-driven method of selecting from the various options for installing, modifying or upgrading the software, customer data, feature set and Incremental Software Management (ISM) parameters. Information about the selections is stored in flash ROM in the form of a list of instructions for the program to follow when it is run.

Invoking the program

The Software Installation Program must be run from TTY 0 (port 0 on card 0). There are two methods of invoking the Software Installation Program:

- 1) by issuing the “upgrade” command in overlay 143
or
- 2 by pressing ^I (control I) keys while the installation prompt is displayed during SYSLOAD.

Note: When a new system is powered up before software has been installed, the Software Installation Program is invoked automatically.

Function selection

The Software Installation Program is menu driven. The main menu provides the core functionality of the program. It encompasses the following key functions:

- installing software in a new system
- upgrading and modifying software in an existing system
- using utilities to work with archived databases, review data, back up data, undo an installation in progress and to clear unwanted data

After all installation or upgrade selections have been made, validating keycodes must be entered. If an invalid keycode is entered, the install function will not be allowed to continue.

Note: Entering an invalid keycode does not affect the software and databases on the present system.

Once the keycode validation passes, the software is installed.

The Software Installation Program has the following other options:

- **Clear Upgrade Information**
If for any reason the installation is to be terminated after the keycodes are entered, but before the installation is done, the installation can be aborted with this option.
- **Confirm Upgrade Information**
This option allows the review of the installation options chosen. It can be used after the keycodes are validated, but before the installation is done.
- **Set system time and date**
This is usually done prior to installation to ensure that all flash drive files have their correct creation date.

Keycodes

Installation of software, feature set and ISM parameters is protected by a security keycode scheme. The installation is not allowed unless the correct keycodes are entered.

Keycodes are required for each new installation as well as existing system upgrades. They are provided on a Keycode Data Sheet supplied with the software and security device. Keycodes are unique to each site for a particular combination of items such as software release, feature set, ISM parameters and so on.

Note: Contact your Northern Telecom representative if the Keycode Data Sheet is missing.

The Software Installation Program validates the keycodes. If the keycodes are valid, the installation function continues.

If the keycodes are rejected, the installation function is halted and one of the following actions can be taken.

- Check the software and make sure it is the correct version for this site
- Check the feature set and make sure the correct data was entered

- Check the ISM parameters and make sure the correct data was entered
- Check the keycodes and make sure the correct ones were entered (they must match the ones listed on the Keycode Data Sheet)
- Abort the installation

Validation of keycodes is limited to three consecutive attempts. After the third consecutive validation failure, the Software Installation Program returns to the main menu and any data entered during this session is lost.

Feature set and ISM parameters

The Software Installation Program allows the selection of a feature set to be installed and enabled on the Option 11C Compact system. A feature set (such as Office Communications or Inter-Office Communications) has an associated list of software packages and ISM parameters. Several preconfigured feature sets may be included on the Software Delivery Card.

The Software Installation Program also allows the addition of individual packages from the feature set and the changing of system ISM parameters.

Since additions and changes are keycode controlled, the packages and ISM parameters must match those corresponding to the site's keycodes.

Note: The Software Installation Program does not check the prerequisites and interactions of added packages.

Security Device

A Security Device is provided with each new Option 11C Compact system. This device is attached to the component side of the NTMW01 Small System Controller (SSC) card at time of initial installation and remains there for the life of the system.

Aux ID

The Aux ID is entered using the Software Installation Program. For new Option 11C Compact sites, the Aux ID is the system security ID.

Once assigned, the Aux ID remains for the life of the system.

Customer database

The Software Installation Program allows the installation of a customer database from one of the following sources:

- **Preconfigured database**

Several preconfigured databases and their associated feature sets may be included on the Software Delivery Card.

In addition, a minimal database is provided which consists of basic system configuration information with no customer data.

- **Archived database**

The Software Installation Program allows the archiving of various databases which can be used later at Option 11C Compact sites. It allows multiple databases to be configured off-site and then installed ready-to-use at customer sites.

Note: Off-site programming of databases is subject to all security keycode restrictions. The off-site system must either be using the Security Device that will be installed in the Option 11C Compact at the customer site, or must have its own keycodes for the feature set used.

- **Remote restored database**

A database may be remotely restored using the Overlay 143 (LD 143) CCBR remote restore command.

- **Backed up database**

The Backed Up Database option allows the copy on the backup flash drive to be installed. It is provided to recover a customer database if the flash daughterboard, which contains the primary flash drive with the operational customer database, fails.

Menu displays

The Software Installation program displays a series of easy to follow menus to assist in installing, upgrading and modifying system software and customer databases.

Main menu

The *Software Installation Main* menu allows the selection of:

- 1) New System Installation
- 2) System Upgrade
- 3) Utilities

This selection is used to access the various utilities provided with the Software Installation Program.

Feature Set menu

The *Select the Feature Set you Wish to Enable* menu displays a listing of the feature sets that are currently available for installation.

Database Install menu

The *Select Database to Install* menu offers a listing of the available databases.

Database Archives menu

The *Archived Database available* menu displays a listing of the archived databases that are available for selection.

Database Upgrade menu

The *Select type of upgrade to be performed* menu allows the selection of the type of upgrade to be performed options.

Utilities menu

The *Utilities* menu allows such things as restoration of backed up data, archiving, reviewing data, restoring archived databases, clearing upgrade information and undoing software installations.

Restore menu

The *Restore* menu provides access to methods of restoring backed up databases.

Archive menu

The *Archive* menu provides a means of listing, removing and storing customer databases in an archive.

Start-up procedures

There are two sets of procedures to follow when starting up the Option 11C Compact system.

- [Procedure 16 on page 136](#) outlines the steps involved in starting up a system and loading software from a new Software Daughterboard programmed with the latest release of software.

Note: This is the standard method of loading software in a new system installation.

- [Procedure 17 on page 137](#) outlines the steps involved in starting up a system and loading software using Software Delivery Card (PCMCIA card) to load software onto the software delivery card.

Procedure 16

Loading system software from a Software Daughterboard

1 Connect the external power supply, if not already done.

Note: The commercial AC power outlet should be tested to make sure the correct voltage is present before plugging in the power cord.

Plug the power cord from each cabinet into the power supply outlet.

2 Set the circuit breaker on the NTMW11 power supply in each cabinet to ON.

Observe the LED on the faceplate of the NTMW01 SSC card. The LED should light steadily for a moment, then flash three times as it performs its self test.

3 Observe the TTY or terminal screen.

Note: The TTY must be connected to TTY port 0.

Once the system is loaded, a menu driven program called the "Software Installation Program" is automatically invoked. This program is used to install the system software as described in [Procedure 18 on page 139](#).

End of Procedure

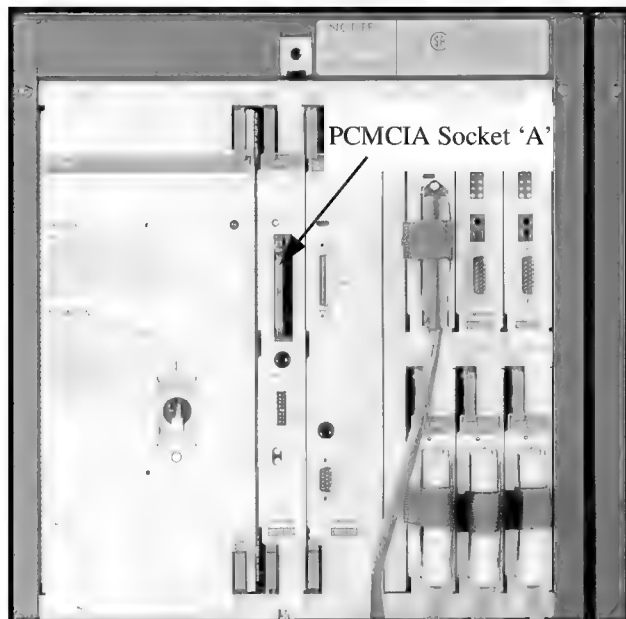
Procedure 17

Loading system software from a Software Delivery Card

- 1** **Connect the external power supply, if not already done.**

Note: The commercial AC power outlet should be tested to make sure the correct voltage is present before plugging in the power cord.

- 2** **Install the Software Delivery Card in the PCMCIA socket located in the faceplate of the NTMW01 SSC card. Gently press on the card until it is firmly seated.**



3 Set the circuit breaker on the NTMW11 power supply in each cabinet to ON.

Observe the LED on the faceplate of the NTMW01 SSC card. The LED should light steadily for a moment, then flash three times as it performs its self test. Observe the TTY or terminal screen.

Note: The TTY must be connected to TTY port 0.

If

FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE
INSTALLATION PROGRAM

message appears during
sysload

Press 'control' key and press 'I'
then perform [Procedure 18 on
page 139.](#)

If

INSERT SOFTWARE DELIVERY CARD

message appears during
sysload

Insert the PCMCIA card in
socket 'A' in the faceplate of the
SSC card then perform
[Procedure 18 on page 139.](#)

If

INSTALL SETUP PROGRAM

message appears during
sysload

Perform [Procedure 18 on
page 139.](#)

End of Procedure

Installing the software

[Procedure 18](#) describes how to use the Software Installation Program install the system software.

Procedure 18 **Software Installation Procedure**

- 1 Observe the terminal screen.

SOFTWARE INSTALLATION PROGRAM
message appears.

- 2 Observe the terminal screen.

If
Current system time and date: 00:00:00 -- 00/00/00
message appears, proceed with Step 3

If
Software Installation Main Menu
message appears, proceed with Step 4

- 3 Set the system Time and Date.

Note: The Time and Date prompt appears only when the Install Setup Program detects a system Year Date that is not in the range of 1995-2095.

- 4 Select item 1 or 4 from the Main Menu.

If you have just completed [Procedure 16 on page 136](#), select item 1.

If you have just completed [Procedure 17 on page 137](#), select item 4.

Software Installation Main Menu
1. New System Installation - From Software Daughterboard
2. System Upgrade
3. Utilities
4. New System Installation - From Software Delivery Card
[q]uit, [h]elp or [?], <cr> - redisplay

5 Select the Feature Set to be enabled.

Note: The Feature Set selected must match the ones provided with key codes. The Feature Set names shown below are examples only.

*** NOTE: The following questions require information on the Keycode Data Sheet.
Please have it available.***

*** NOTE: If an External Data Card is being used for this system, please insert it into drive b: Now.***

(The following feature sets are examples)

Select Feature Set You Wish to Enable:

1. Office Communications (NTSKxxxx)
2. Inter-Office Communications NTSKxxxx)

[q]uit, [p]revious, [m]ain menu, [h]elp or [?], <cr>
redisplay

6 Indicate whether or not packages are to be added.

Feature Set Selection: Inter-Office Communications

Do you wish to add packages?

n<cr> (no)
y<cr> (yes)
a<cr> (abort, return to main menu)

If the response was **n**
proceed with Step **9**

If the response was **y**
Proceed with Step **7**

7 Select the Feature packages to be added.

(example)

Summary of Packages selected is:

0-2 4-5 7-14 16-21 23-25 28-29 32-64 67 70-77 79-83 86-93
95 98-104
107-111 113-116 118-120 122-125 127-129 131-133 135
137-141

Enter packages (s) to be added, blank line to end:

22<cr>

<cr>

8 Confirm Feature Set and packages.Your Feature Set Selection is "Inter-Office
Communications":

Additional Packages selected: 215-235

Summary of Packages selected is:

0-2 4-5 7-14 16-25 28-29 32-64 67 70-77 79-83 86-93 95
100-104 107-111 113-116 118-120 122-125 127-129 131-133
135 137-141

...

...

200-208

Is this selection correct?

n<cr> (no)**y**<cr> (yes)**a**<cr> (abort, return to main menu)If the response was **n**Step [5](#)If the response was **y**Step [9](#)**9 Select a Database.**

Select database to Install:

1. Pre-Configured database
2. Basic Configuration
3. Archived Database

[q]uit, [p]revious, [m]ain menu, [h]elp or [?], <cr>
redisplay

10 Review ISM parameters.

Note: On a new installation, the ISM parameters displayed on the terminal screen will be the default settings associated with the Feature Set selection. These settings can be accepted without changes or changed to suit the requirements of the new system.

Current ISM Parameters:

```
TNS      (0048)  (number of terminal numbers)
AGNT     (0128)  (number of ACD agents)
ACDN     (300)   (number of ACD DNs)
AST      (0000)  (number of associate Sets)
DSL      (0000)  (number of Digital Subscriber Loops)
LTID     (0000)  (number of Logical Terminal IDs)
MOPT     (0000)  (Meridian Mail option)
```

Do you wish to change ISM parameters?

n<cr> (no change)

y<cr> (change)

a<cr> (abort, return to main menu)

If the response was **y**
proceed with Step **11**

the response was **n**
proceed with Step **13**

11 Select ISM parameters.

(example)

Enter new ISM parameters, <cr> to leave as is:

```
TNS (0048)          64<cr> (change)
AGNT (0128)         <cr> (no change)
ACDN (300)          <cr> (no change)
AST (0000)          <cr> (no change)
DSL (0000)          <cr> (no change)
LTID (0000)         <cr> (no change)
MOPT (0000)         <cr> (no change)
```

12 Confirm ISM parameters.

New ISM parameters are:

TNS (0064)
 AGNT (0128)
 ACDN (0100)
 AST (0000)
 DSL (0000)
 LTID (0000)
 MOPT (0000)

Is this correct?

n<cr> (no)

y<cr> (yes)

a<cr> (abort, return to main menu)

If the response was **n**
 go to Step [10](#)

If the response was **y**
 go to Step [13](#)

13 Define the AUX ID.

Note: You should not need to change the AUX ID on the Option 11C Compact.

14 Review and confirm information entered.

New Installation Information Summary:

System ID	:	20000326
Aux ID	:	20000326
Added Pkgs	:	none
Feature Set	:	Inter-Office Communications
Database	:	Company.ABC
		OLD NEW
S/W Release	:	0100 0100
ISM Parameters		OLD NEW
TSN	:	0048 0064
AGNT	:	0128 0128
ACDN	:	300 300
AST	:	0000 0000
DSL	:	0000 0100
LTID	:	0000 0000
MOPT	:	0000 0000

Is this correct?

y<cr> (yes)
n<cr> (no)
a<cr> (abort, return to main menu)

If the response was **n**
go to Step [5](#)

If the response was **y**
go to Step [15](#)

15 Enter the keycodes

Note: Enter keycodes in place of **x, y, z**, as shown.

Enter new Keycodes:

Key 1: **xxxxxxx**<cr>
Key 2: **yyyyyyy**<cr>
Key 3: **zzzzzzz**<cr>

If after the last keycode is entered,
`Keycode validation successful`
WARNING A system restart will be invoked as part
of the software installation process`
message appears
go to Step [16](#)

If after the last keycode is entered,
`Keycode validation unsuccessful`
message appears
do Step [15](#) again to re-enter correct keycodes

Note: After three unsuccessful keycode validation attempts, the
following message appears.

Keycode validation unsuccessful.
Installation aborted...returning to main menu.

- 16** Complete the software installation.

Are you sure you wish to perform the installation?

y<cr> (yes)

n<cr> (no)

a<cr> (abort, return to main menu)

If the response was **y**

—End—

If the response was **n**

go to Step **4**.

- 17** **Observe the screen a second time once the installation program has been completed.**

Messages will appear on the TTY or terminal screen. When the message "INIXXX" appears, the system is operational.

- 18** **If required, set the system time and date using LD 2.**

- 19** **Perform an EDD using LD 43.**

End of Procedure

Chapter 17 – Connecting the telephones and attendant console

General information

This chapter contains information about connecting telephones to the cross-connect terminal. It also contains information about the location of the individual extension numbers (DNs) when you are implementing one of the default numbering plans and how to activate each telephone. Refer to the instructions provided with the telephone or console for information about installing telephones and consoles. Refer to “Chapter 22 – Pre-programmed Data” on page 343 for information about pre-programmed data.

The cable from the line card associated with the telephone being connected, must be installed before continuing. Refer to “Chapter 14 – Installing and connecting the cross-connect terminal” on page 113, if additional cabling is required.

Cable assignments

The cables from each cabinet are labeled at the cross-connect terminal. Each cable represents a specific set of Terminal Numbers (TNs).

The TN assignments for the different types of line cards are described in the following Tables:

- [Table 17, “NTMW05 24 DLC Terminal number assignments,” on page 157](#)
- [Table 18, “NTMW06 16 ALC Terminal number assignments,” on page 158](#)
- [Table 19, “NTMW07 Trunk/Line Terminal Number \(TN\) assignments,” on page 159](#)

Power Failure Transfer

The NTMW07 Trunk/Line card has a built-in Power Failure Transfer (PFT) feature, designed to operate with a loop start trunk. This feature allows the connecting one trunk on the card to an analog telephone on the same card in the event of a commercial power or system failure, or if this card is disabled.

Note: Ground start trunks require a telephone set equipped with a ground start button to place outgoing calls when in PFT mode.

The Terminal Numbers (TNs) that are equipped to perform the PFT function vary depending on the slot assignment in the cabinets. When a PFT occurs, the following are connected:

- **In the Main cabinet**
 - When the NTMW07 card is in slot 1 & 2
TN 01 03 connects to TN 02 03
(Trunk on Card 01 Unit 03 connects to the telephone on Card 02 Unit 03)
 - When the NTMW07 card is in slot 3 & 4
TN 03 03 connects to TN 04 03
(Trunk on Card 03 Unit 03 connects to the telephone on Card 04 Unit 03)
 - When the NTMW07 card is in slot 5 & 6
TN 05 03 connects to TN 06 03
(Trunk on Card 05 Unit 03 connects to the telephone on Card 06 Unit 03)
- **In the Expansion cabinet**
 - When the NTMW07 card is in slot 11 & 12
TN 11 03 connects to TN 12 03
(Trunk on Card 11 Unit 03 connects to the telephone on Card 12 Unit 03)
 - When the NTMW07 card is in slot 13 & 14
TN 13 03 connects to TN 14 03
(Trunk on Card 13 Unit 03 connects to the telephone on Card 14 Unit 03)

- When the NTMW07 card is in slot 15 & 16
TN 15 03 connects to TN 16 03
(Trunk on Card 15 Unit 03 connects to the telephone on Card 16 Unit 03)

WARNING

Always use caution when installing or modifying telephone lines. Avoid installing telephone wiring during a lightning storm. Do not install telephone jacks in wet locations unless the jack is specifically designed for wet locations. Never touch uninsulated telephone wiring unless the line has been disconnected at the network interface.

Cross-connecting telephones

Connecting on-premise telephones

Connect the telephones according to the following figures. Cross-connections for Analog (500/2500 type) telephones are shown in [Figure 32](#) for the MTMW06 card, and [Figure 33](#) for the NTMW07 card.

Note: Refer to [“Power Failure Transfer” on page 148](#) for telephones requiring the PFT feature.

Connection for Meridian Digital Telephones are shown in [Figure 34](#).

Procedure 19**Cross-connecting telephones**

- 1** **Locate telephone terminations at the cross-connect terminal.**
- 2** **Connect Z-type cross-connecting wire to the leads of the telephone.**
- 3** **Locate line circuit card (TN) terminations at the cross-connect terminal.**
- 4** **Connect the other end of the cross-connecting wire to the assigned TN terminal block.**

The telephone can now be activated as described in [“Activating telephones” on page 162](#).

End of Procedure

Figure 32
NTMW06 Analog Line Card cross-connections

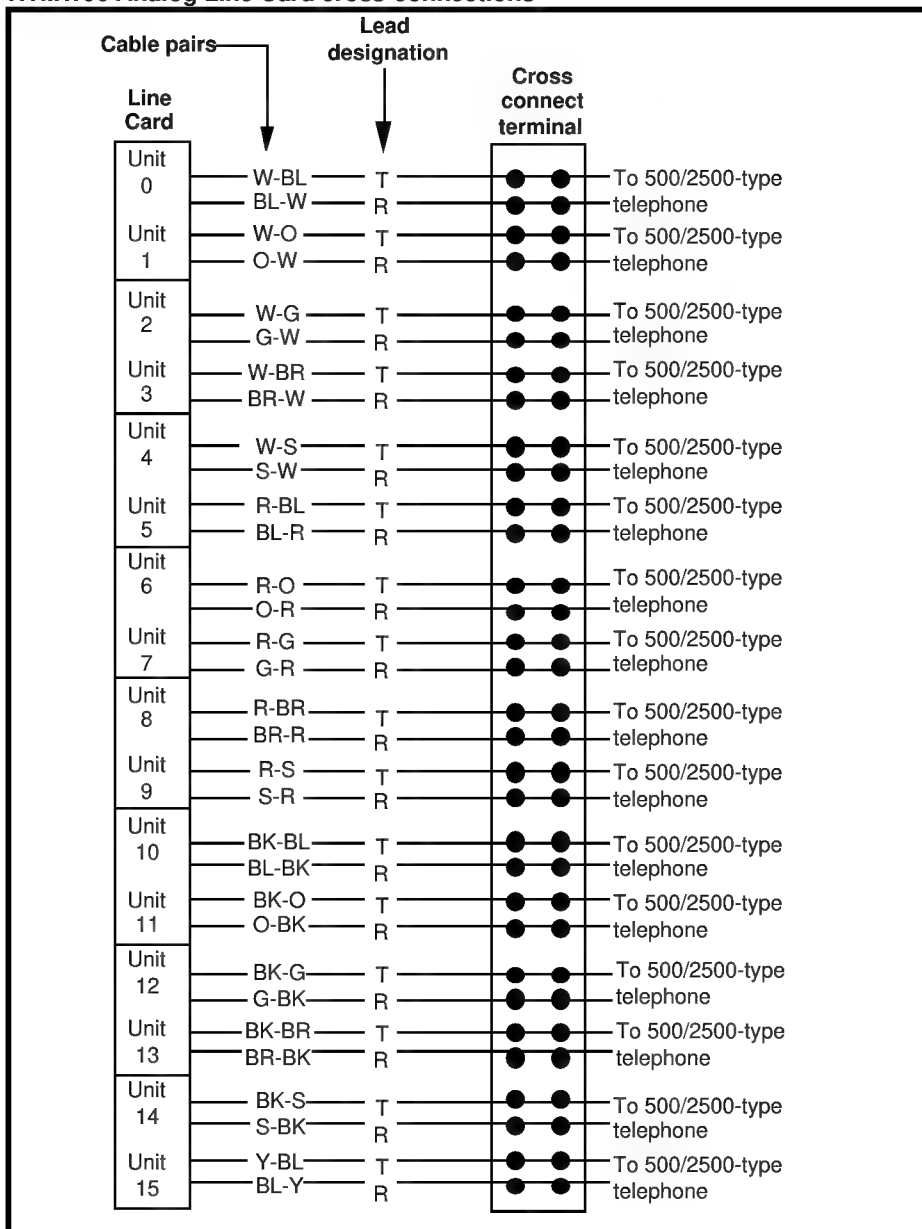


Figure 33
NTMW07 Analog Trunk/Line Card cross-connections (telephone sets)

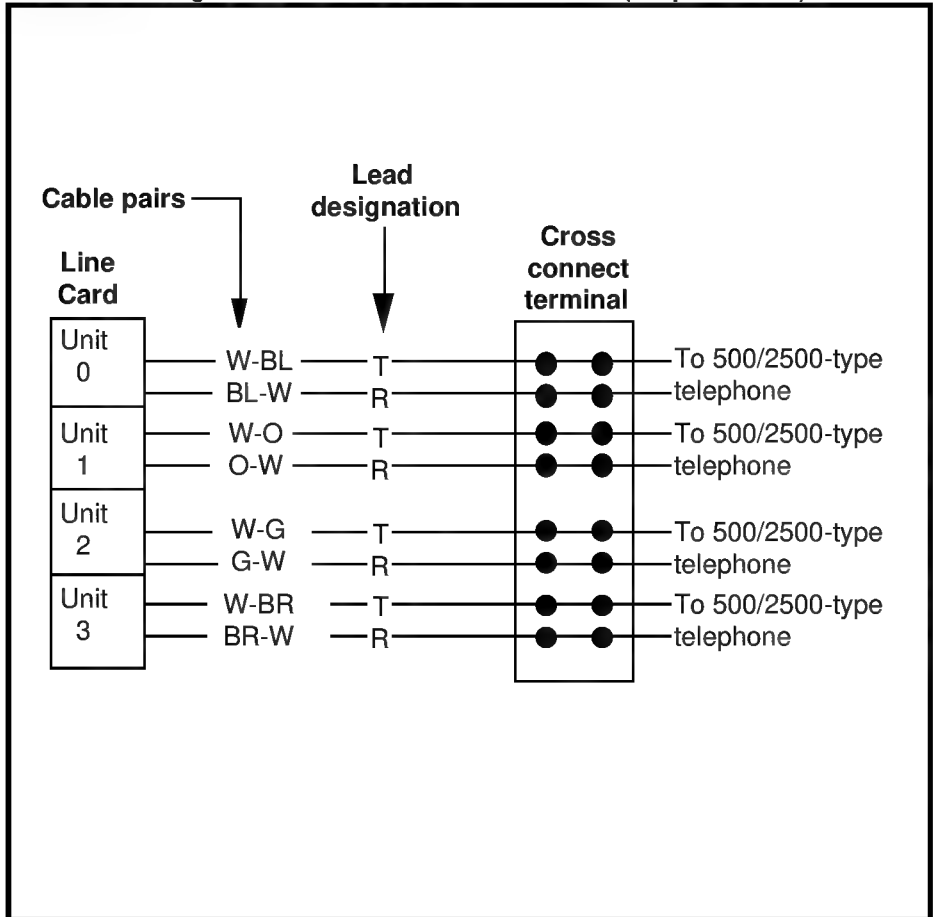
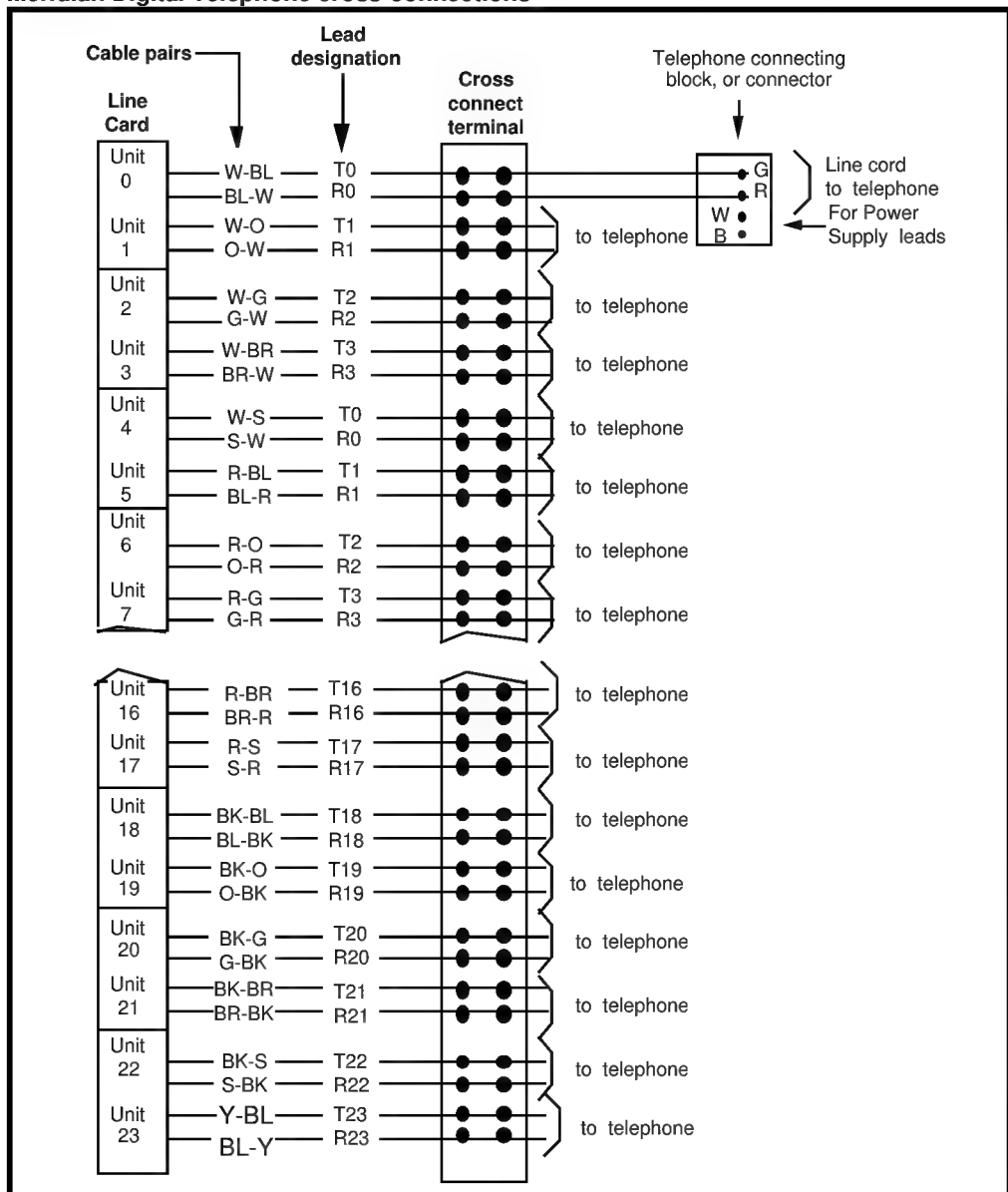


Figure 34
Meridian Digital Telephone cross-connections



Connecting off-premise telephones

Off-premise 500/2500-type telephones must be connected through an NTAK92AA Off-Premise Protection module. Each module can connect up to four analog telephones and can interface with an NTMW06 Analog Line Card or with an NTMW07 Trunk/Line Card.

WARNING

The message waiting indicator produces -150 volts which is considered hazardous on off-premise telephones. Make sure that the -150 V is disabled on off-premise telephones. The voltage is disabled when the Class Of Service (CLS) assigned to the telephone is LPD (message waiting lamp denied) and MWD (Message Waiting Denied) in LD 10. Refer to the *Software guides* for information about LD 10.

Under no circumstances should LPA or MWA be assigned in the Class of Service on off-premise telephones

Procedure 20

Connecting an off-premise telephone.

- 1 **Mount the NTAK92AA Off-Premise protection module on the wall using four #10 1/2 in (minimum) screws.**
- 2 **Connect a #6 AWG ground wire from the ground lug at the bottom of the NTAK92AA Off-Premise protection module to an earth ground. Refer to [Figure 35](#).**

WARNING

If connecting to a message waiting line card, unseat the card from its assigned slot before proceeding with the next step.

- 3 **Connect two NTAK9204 cables (one from connector J1 and one from connector J2) from the protection module to the cross-connect terminal.**

Terminate the cables as shown in [Figure 32](#).

- 4 **Cross-connect the J1 cable to the Tip and Ring connections coming from the line card.**
Refer to [Tables 20](#) and [21](#).
- 5 **Cross-connect the J2 cable to the off-premise telephone.**
- 6 **Install the regulatory label provided with the Off-Premise protection module on the inside right-hand wall of the cabinet near the velcro wriststrap fastener.**
- 7 **Install the line card in its assigned position.**
The telephone can now be activated as described in [“Activating telephones” on page 162](#).

End of Procedure

Connecting an attendant console

[Procedure 21](#) describes how to connect an attendant console to an NTMW05 line card.

Procedure 21 Connecting attendant console

- 1 **Locate the attendant console terminations at the cross-connect terminal.**
- 2 **Locate the line card terminations at the cross-connect terminal.**
- 3 **With cross-connect wire, connect the line card and other connections to the console as shown in [Figure 36](#).**

End of Procedure

Figure 35
NTAK92AA Off-Premise Protection Module connections

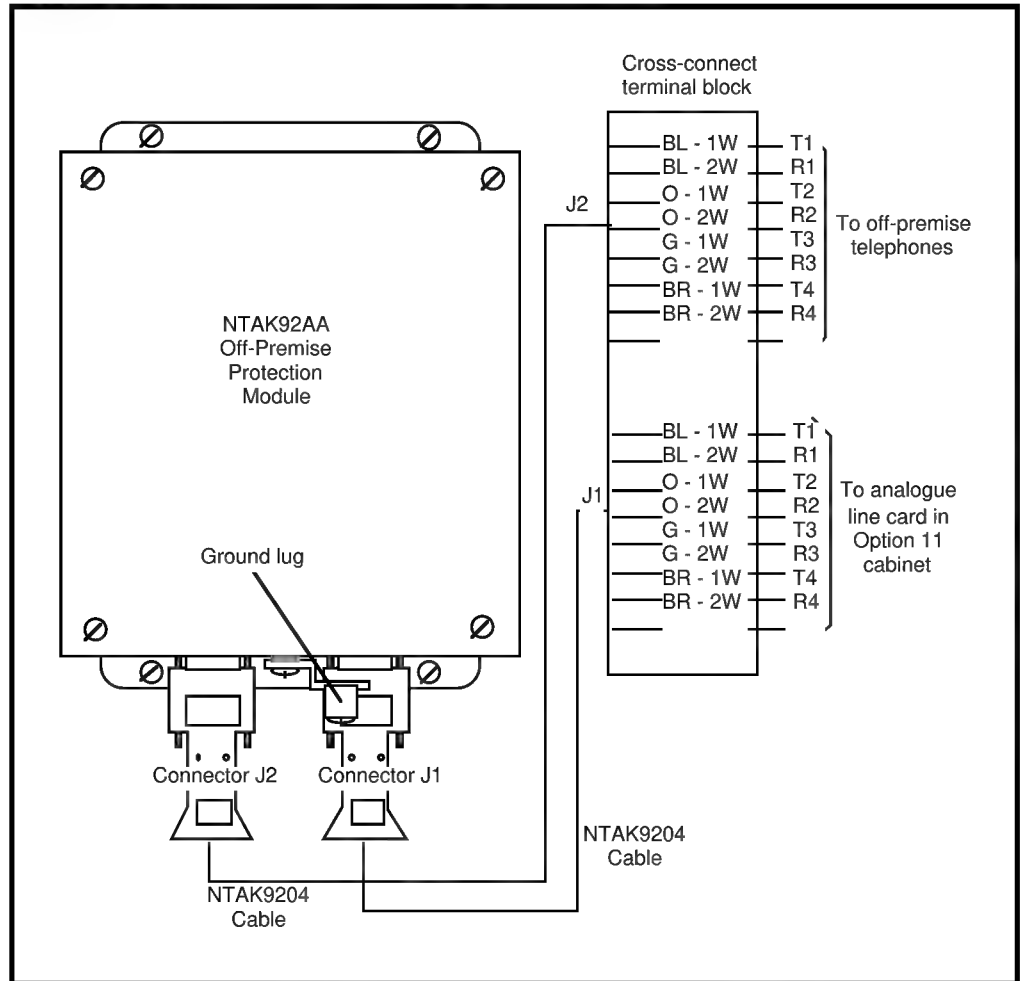


Figure 36
Attendant console connections

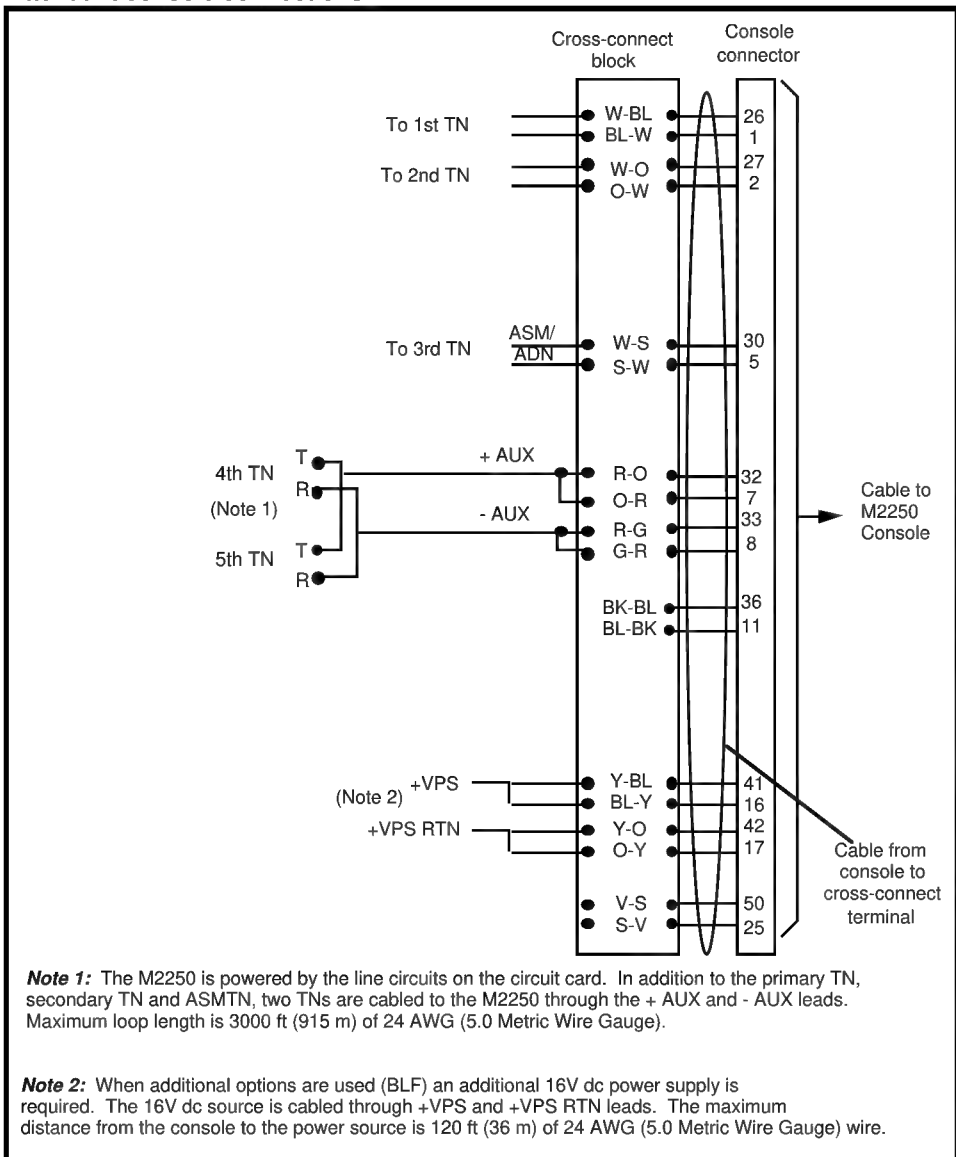


Table 17
NTMW05 24 DLC Terminal number assignments

Card Slot	Card Assignment	First TN.....Last TN	Cable	Cabinet
1 & 2	1	Voice 01 00.....01 23 Data 01 24.....01 31	1 & 2	Main
	2	—		Main
3 & 4	3	Voice 03 00.....03 23 Data 03 24.....03 31	3 & 4	Main
	4	—		Main
5 & 6	5	Voice 05 00.....05 23 Data 05 24.....05 31	5 & 6	Main
	6	—		Main
7	7	Voice 07 00.....07 23 Data 07 24.....07 31	7	Main
8	8	Voice 08 00.....08 23 Data 08 24.....08 31	8	Main
9	9	Voice 09 00.....09 23 Data 09 24.....09 31	9	Main
10		Meridian Mail	—	Main
11 & 12	11	Voice 11 00.....11 23 Data 11 24.....11 31	11 & 12	Expansion
	12	—		Expansion
13 & 14	13	Voice 13 00.....13 23 Data 13 24.....13 31	13 & 14	Expansion
	14	—		Expansion
15 & 16	15	Voice 15 00.....15 23 Data 15 24.....15 31	15 & 16	Expansion
	16	—		Expansion
17	17	Voice 17 00.....17 23 Data 17 24.....17 31	17	Expansion
18	18	Voice 18 00.....18 23 Data 18 24.....18 31	18	Expansion
19	19	Voice 19 00.....19 23 Data 19 24.....19 31	19	Expansion
	20	Not used	—	Expansion

Table 18
NTMW06 16 ALC Terminal number assignments

Card Slot	Card Assignment	First TN.....Last TN	Cable	Cabinet
1 & 2	1	01 00.....01 15	1 & 2	Main
	2	—		Main
3 & 4	3	03 00.....03 15	3 & 4	Main
	4	—		Main
5 & 6	5	05 00.....05 15	5 & 6	Main
	6	—		Main
7	7	07 00.....07 15	7	Main
8	8	08 00.....08 15	8	Main
9	9	09 00.....09 15	9	Main
10		Meridian Mail	—	Main
11 & 12	11	11 00.....11 15	11 & 12	Expansion
	12	—		Expansion
13 & 14	13	13 00.....13 15	13 & 14	Expansion
	14	—		Expansion
15 & 16	15	15 00.....15 15	15 & 16	Expansion
	16	—		Expansion
17	17	17 00.....17 15	17	Expansion
18	18	18 00.....18 15	18	Expansion
19	19	19 00.....19 15	19	Expansion
	20	Not used	—	Expansion

Table 19
NTMW07 Trunk/Line Terminal Number (TN) assignments

Note: The NTMW07 can only be installed in slots 1 & 2, 3 & 4 and 5 & 6 in the main cabinet, and in slots 11 & 12, 13 & 14 and 15 & 16 in the expansion cabinet. The system recognizes the line card portion as even numbered card assignment (cards 2, 4, 6, 12, 14, 16). See [Table 17](#) on [page 157](#) and [Table 18](#) on [page 158](#) for card assignments for slots 7, 8, 9, 17, 18 and 19.

Card Slot	Card Assignment	First TN.....Last TN	Cable	Cabinet
1 & 2	1	—	1 & 2	Main
	2	02 00.....02 03		Main
3 & 4	3	—	3 & 4	Main
	4	04 00.....04 03		Main
5 & 6	5	—	5 & 6	Main
	6	06 00.....06 03		Main
7	7	Note	7	Main
8	8	Note	8	Main
9	9	Note	9	Main
10		Meridian Mail	—	Main
11 & 12	11	—	11 & 12	Expansion
	12	12 00.....12 03		Expansion
13 & 14	13	—	13 & 14	Expansion
	14	14 00.....14 03		Expansion
15 & 16	15	—	15 & 16	Expansion
	16	16 00.....16 03		Expansion
17	17	Note	17	Expansion
18	18	Note	18	Expansion
19	19	Note	19	Expansion
	20	Not used	—	Expansion

Table 20
Default DN assignments — Main cabinet

Slot		Unit	Default Directory Number (DN)							
1	Note 1	0 - 7	2200	2201	2202	2203	2204	2205	2206	2207
		8 - 15	2208	2209	2210	2211	2212	2213	2214	2215
	Note 2	16 - 23	2216	2217	2218	2219	2220	2221	2222	2223
2	Note 3	0 - 3	2224	2225	2226	2227				
3	Note 1	0 - 7	2248	2249	2250	2251	2252	2253	2254	2255
		8 - 15	2256	2257	2258	2259	2260	2261	2262	2263
	Note 2	16 - 23	2264	2265	2266	2267	2268	2269	2270	2271
4	Note 3	0 - 3	2272	2273	2274	2275				
5 & 6	Note 1	0 - 7	2296	2297	2298	2299	2300	2301	2302	2303
		8 - 15	2304	2305	2306	2307	2308	2309	2310	2311
	Note 2	16 - 23	2312	2313	2314	2315	2316	2317	2318	2319
6	Note 3	0 - 3	2320	2321	2322	2324				
7	Note 1	0 - 7	2344	2345	2346	2347	2348	2349	2350	2351
		8 - 15	2352	2353	2354	2355	2356	2357	2358	2359
	Note 2	16 - 23	2360	2361	2362	2363	2364	2365	2366	2367
8	Note 1	0 - 7	2368	2369	2370	2371	2372	2373	2374	2375
		8 - 15	2376	2377	2378	2379	2380	2381	2382	2383
	Note 2	16 - 23	2384	2385	2386	2387	2388	2389	2390	2391
9	Note 1	0 - 7	2392	2393	2394	2395	2396	2397	2398	2399
		8 - 15	2400	2401	2402	2403	2404	2405	2406	2407
	Note 2	16 - 23	2408	2409	2410	2411	2412	2413	2414	2415

Note 1: Only units 0 through 15 are available with the NTMW06 Analog Line card.

Note 2: All units are available (units 0 through 23) are available with the NTMW05 Digital Line card.

Note 3: Only units 0, 1, 2 and 3 are available with the NTMW07 Trunk & Line card.

Table 21
Default DN assignments — Expansion cabinet

Slot		Unit	Default Directory Number (DN)							
11	Note 1	0 - 7	2440	2441	2442	2443	2444	2445	2446	2447
		8 - 15	2448	2449	2450	2451	2452	2453	2454	2455
	Note 2	16 - 23	2456	2457	2458	2459	2460	2461	2462	2463
12	Note 3		2464	2465	2466	2467				
13	Note 1	0 - 7	2488	2489	2490	2491	2492	2493	2494	2495
		8 - 15	2496	2497	2498	2499	2500	2501	2502	2503
	Note 2	16 - 23	2504	2505	2506	2507	2508	2509	2510	2511
14	Note 3		2512	2513	2514	2515				
15	Note 1	0 - 7	2536	2537	2538	2539	2540	2541	2542	2543
		8 - 15	2544	2545	2546	2547	2548	2549	2550	2551
	Note 2	16 - 23	2552	2553	2554	2555	2556	2557	2558	2559
16	Note 3		2560	2561	2562	2563				
17	Note 1	0 - 7	2584	2585	2586	2587	2588	2589	2590	2591
		8 - 15	2592	2593	2594	2595	2596	2597	2598	2599
	Note 2	16 - 23	2600	2601	2602	2603	2604	2605	2606	2607
18	Note 1	0 - 7	2608	2609	2610	2611	2612	2613	2614	2615
		8 - 15	2616	2617	2618	2619	2620	2621	2622	2623
	Note 2	16 - 23	2624	2625	2626	2627	2628	2629	2630	2631
19	Note 1	0 - 7	2632	2633	2634	2635	2636	2637	2638	2639
		8 - 15	2640	2641	2642	2643	2644	2645	2646	2647
	Note 2	16 - 23	2648	2649	2650	2651	2652	2653	2654	2655

Note 1: Only units 0 through 15 are available with the NTMW06 Analog Line card.

Note 2: All units are available (units 0 through 23) are available with the NTMW05 Digital Line card.

Note 3: Only units 0, 1, 2 and 3 are available with the NTMW07 Trunk/Line card.

Activating telephones

Each telephone is activated by carrying out a procedure on the telephone itself.

Note: The data feature cannot be activated using the procedures in this chapter. The data feature must be programmed using LD 11 with Data class of service as described in the *Option 11C Compact Software guides*.

Procedures for activating the following models of telephones are outlined:

- a default model with default extension number
- a customized model with a customized extension number.

Refer to “Telephone Models” on page 357 for a description of available pre-programmed telephone models.

These procedures are presented for telephones with and without character displays.

Telephone tones

There are a number of different telephone tones. The following list includes tones that are heard during telephone activation:

Dial tone	A continuous tone.
Special dial tone	Three beeps followed by continuous dial tone.
Overflow tone	Similar to a busy tone, except faster and higher.
Relocation tone	A short high-pitched beep lasting 4 seconds, followed by silence.

Before activating a telephone, make sure it is in its final location. Note the model number assigned to it and whether or not it is to be customized.

Note: Meridian Digital telephones are allowed 128 models for each type of telephone. When activating a Meridian Digital telephone, select the model associated with that telephone type or it will not function.

Activating default models

Telephone with a character display

[Procedure 22](#) describes how to activate a default model on a telephone with a character display.

Procedure 22

Activating the telephone

1 Plug the telephone set into the jack and wait 20 seconds.

Note: The 20 second time interval is required for the system to determine whether the set is new or if it is being relocated using the Modular Telephone Relocation feature.

2 Lift the handset. If dial tone is not present, restore the handset and wait 10 seconds.

Lift the handset and listen for dial tone. (Repeat this procedure until dial tone is heard.)

If successful, the character display shows either
“MODEL? X”

(if the telephone relocation feature is **not** in use) or

“RELOC OR MODEL? X”

(if the telephone relocation feature **is** in use). “X” represents the default model for the telephone that you are activating.

Note: If the prompt “MODEL X” is not displayed after lifting the handset, disconnect the telephone from the wall jack, wait five seconds, and re-insert the telephone into the jack. The telephone now shows “MODEL X” when the handset is lifted.

3 Press the pound key (#) to select the default model.

The character display shows

“OK, EXTENSION?”

XXXX”. “XXXX” represents the default extension number for this telephone type.

4 Press the pound key to select the default extension number.

Relocation tone is heard. The character display shows
"OK".

or

If the extension number is already in use by another telephone, special dial tone is heard. The character display shows
"MULTI-LINE, EXTENSION?".

To accept the default extension number press the pound key.

To select a new extension number, enter an extension number and press the pound key.

or

If the extension number is not available for use
"ERROR, EXTENSION?"

is displayed and overflow tone is heard. (This happens when the extension number is entered manually or when extension numbers are entered for additional keys. A default extension number will not be offered if it is not available.) Repeat Step 4 and enter a new extension number.

Note: If other keys require secondary extension numbers, you are prompted until all the required extension numbers are entered for the model. These extension numbers cannot be defaulted. The text display prompting for further extension numbers is
"KEY kk EXT?"

where "kk" represents the key number requiring the extension number. Each prompt for another extension number is accompanied by special dial tone. When an extension number is being programmed, the lamp associated with that number on the telephone is lit.

5 Hang up the telephone handset.

After approximately 10 seconds, the telephone is configured.

Note: If the handset is replaced before completing the prompt sequence, the installation will automatically fail. This is useful when an error is made and the procedure is to be repeated.

End of Procedure

Telephone without a character display

[Procedure 23](#) describes how to activate a default model on a telephone with a character display.

Procedure 23
Activating the telephone**1 Plug the telephone set into the jack and wait 20 seconds.**

Note: The 20 second time interval is required for the system to determine whether the set is new or if it is being relocated using the Modular Telephone Relocation feature.

2 Press the pound key (#) to select the default model.**3 Press the pound key again to select the default extension number.**

A short, high-pitched beep lasting four seconds is heard followed by silence (relocation tone). If the extension number is already in use by another telephone, three beeps are heard followed by continuous dial tone (special dial tone).

To accept the default extension number press the pound key.

To select a new extension number, enter an extension number and press the pound key.

If the extension number is not available for use, a fast, high-pitched broken tone (overflow tone) is heard. (This happens when an extension number is manually chosen or when extension numbers are entered for additional keys. A default extension number will not be offered if it is not available). Repeat Step [3](#) and enter a new extension number.

Note: If other keys require secondary extension numbers, you are prompted until all the required extension numbers for the model are entered. These extension numbers cannot be defaulted. You are prompted for each additional extension number with three beeps followed by continuous dial tone (special dial tone). When an extension number is being programmed, the lamp associated with that number on the telephone is lit.

End of Procedure

Activating customized models

Telephone with a character display

[Procedure 24](#) describes how to activate a customized model on a telephone with a character display.

Procedure 24

Activating a customized telephone

1 Plug the telephone set into the jack and wait 20 seconds.

Note: The 20 second time interval is required for the system to determine whether the set is new or if it is being relocated using the Modular Telephone Relocation feature.

2 Lift the handset. If dial tone is not present, restore the handset and wait 10 seconds.

Lift the handset and listen for dial tone. (Repeat this procedure until dial tone is heard.)

If successful, the character display shows either
“MODEL? X”

(if the telephone relocation feature is **not** in use) or

“RELOC OR MODEL? X”

(if the telephone relocation feature **is** in use). “X” represents the default model for the telephone that you are activating.

Note: If the prompt “MODEL X” is not displayed after lifting the handset, disconnect the telephone from the wall jack, wait five seconds, and re-insert the telephone into the jack. The telephone now shows “MODEL X” when the handset is lifted.

3 Press the digits associated with the customized model and press the pound key (#).

Dial tone disappears after the first digit is pressed. Three beeps followed by continuous dial tone (special dial tone) is heard after pressing the pound key.

If a valid model number is entered, the character display reads
“OK, EXTENSION?”.

If an invalid model is entered, the previous prompt is reissued and overflow tone is heard.

4 Enter the customized extension number and press the pound key.

Relocation tone is heard. The character display shows "OK".

or

If the extension number is already in use by another telephone, special dial tone is heard. The character display shows "MULTI-LINE, EXTENSION?".

or

If the extension number is not available for use, overflow tone is heard. The character display shows "ERROR, EXTENSION?"
Repeat this step.

Note: If other keys require secondary extension numbers, you are prompted until all of the required extension numbers are entered for the model. These extension numbers cannot be defaulted. The text display prompting for further extension numbers is "KEY kk EXT?"

where "kk" represents the key number requiring the extension number. Each prompt for another extension number is accompanied by special dial tone. When programming an extension number, the lamp associated with that number on the telephone is lit.

5 Hang up the telephone handset.

After approximately 10 seconds, the telephone is configured.

Note: If the handset is replaced before completing the prompt sequence, the installation will automatically fail. This is useful when an error is made and the procedure is to be repeated.

End of Procedure

Telephone without a character display

Procedure 25 describes how to activate a customized model on a telephone without a character display.

Procedure 25

Activating a customized telephone

- 1 Plug the telephone set into the jack and wait 20 seconds.**
- 2 Lift the handset. If dial tone is not present, restore the handset and wait 10 seconds.
Lift the handset and listen for dial tone. (Repeat this procedure until dial tone is heard.)**

Note: The 20 second time interval is required for the system to determine whether the set is new or is being relocated using the Telephone Relocation feature.

- 3 Press the digits associated with the customized model and press the pound key (#).**

Three beeps followed by continuous dial tone (special dial tone) is heard after pressing the pound key.

- 4 Enter the customized extension number and press the pound key.**

A short high-pitched beep lasting four seconds is heard, followed by silence (relocation tone).

If the extension number is already in use by another telephone, special dial tone is heard.

If the extension number is not available for use, a fast, high-pitched broken tone (overflow tone) is heard. Repeat this step.

- 5 Hang up the telephone handset.**

After approximately 10 seconds, the telephone is configured.

Note: If other keys require secondary extension numbers, you are prompted until all of the required extension numbers for the model are entered. These extension numbers cannot be defaulted. You are prompted for each additional extension number with three beeps followed by continuous dial tone (special dial tone). When programming an extension number, the lamp associated with that number on the telephone is lit.

End of Procedure

Chapter 18 – Connecting the trunks

General information

This Chapter describes how to connect trunks.

During the initial software installation, the installer has the option of loading a default database containing pre-programmed trunk data into software. If necessary, the default data can be modified at any time to meet the specific needs.

For a complete description of how to modify pre-programmed trunk data, refer to “Chapter 23 – Changing pre-programmed data” on page 375.

WARNING

Use caution when installing or modifying telephone lines. Avoid installing telephone wiring during a lightning storm. Do not install telephone jacks in wet locations unless the jack is specifically designed for wet locations. Never touch uninsulated telephone wiring unless the line has been disconnected at the network interface.

Power Failure Transfer

The NTMW07 Trunk/Line card has a built-in Power Failure Transfer (PFT) feature, designed to operate with a loop start trunk. This feature allows the connecting one trunk on the card to an analog telephone on the same card in the event of a commercial power or system failure.

Note: Ground start trunks require a telephone set equipped with a ground start button to place outgoing calls when in PFT mode.

The Terminal Numbers (TNs) that are equipped to perform the PFT function vary depending on the slot assignment in the cabinets. When a PFT occurs, the following are connected:

- **In the Main cabinet**
 - When the NTMW07 card is in slot 1 & 2
TN 01 03 connects to TN 02 03
(Trunk on Card 01 Unit 03 connects to the telephone on Card 02 Unit 03)
 - When the NTMW07 card is in slot 3 & 4
TN 03 03 connects to TN 04 03
(Trunk on Card 03 Unit 03 connects to the telephone on Card 04 Unit 03)
 - When the NTMW07 card is in slot 5 & 6
TN 05 03 connects to TN 06 03
(Trunk on Card 05 Unit 03 connects to the telephone on Card 06 Unit 03)
- **In the Expansion cabinet**
 - When the NTMW07 card is in slot 11 & 12
TN 11 03 connects to TN 12 03
(Trunk on Card 11 Unit 03 connects to the telephone on Card 12 Unit 03)
 - When the NTMW07 card is in slot 13 & 14
TN 13 03 connects to TN 14 03
(Trunk on Card 13 Unit 03 connects to the telephone on Card 14 Unit 03)

- When the NTMW07 card is in slot 15 & 16
TN 15 03 connects to TN 16 03
(Trunk on Card 15 Unit 03 connects to the telephone on Card 16
Unit 03)

Connecting trunks

[Procedure 26](#) describes how to connect trunks at the cross-connect terminal.

Note: Refer to [“Power Failure Transfer” on page 170](#) for trunks requiring the PFT feature.

Procedure 26 **Connecting trunks**

- 1 From the assignment record, determine the location of the trunk connection and its associated Terminal Number (TN) at the cross-connect terminal.**
- 2 With cross-connecting wire, connect the trunk to the TN.**

Make sure that the wiring is not reversed and is on the proper terminals.

The connections for trunks are listed in [Tables 24 and 25](#).

The trunk can now be activated as described in [“Activating trunks” on page 176](#).

End of Procedure

NTMW07 Trunk/Line card

The NTMW07 card provides four analog trunks which can function in the modes shown in [Table 22](#).

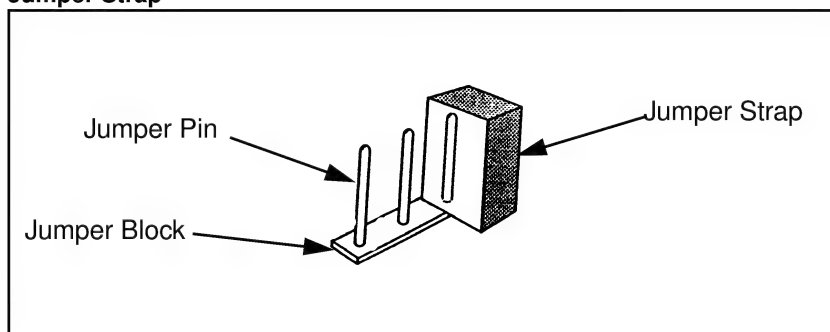
Table 22
Jumper Strap Settings

Trunk Types	Loop Length	Jumper Strap Settings			
		J1 n	J2 n	J3 n	J4 n
Factory Setting		Off	Off		
CO/FX/WATS	0 — 5000 ft (1525 m)				
2-way TIE (LDR)					
2-way TIE (OAID)					
DID	0 — 600 Ω			1-2	1-2
RAN: continuous operation mode	Not applicable: RAN and Paging trunks should not leave the premises.				
Paging					
Extended Range		J1 n	J2 n	J3 n	J4 n
CO/FX/WATS	> 5000 ft (1525 m)	Off	Off	1-2	1-2
2-way TIE (LDR)					
2-way TIE (OAID)					
DID	> 600 Ω	On	On	1-2	2-3
RAN: pulse start or level start modes	Not applicable: RAN and Paging trunks should not leave the premises.	Off	Off	2-3	1-2
Note: Jumper strap settings J1 n, J2 n, J3 n and J4 n apply to all trunk units. 'n' indicates the unit number (0-3). 'Off' means that no jumper strap is installed on a jumper block. Store unused straps by installing them on a single jumper pin. Refer to Figure 37 on page 173 .					

Table 23
Power fail transfer

Power Fail Transfer	J1
Power Fail Transfer On	1-2
Power fail Transfer Off	2-3

Figure 37
Jumper Strap



Refer to [Table 24](#) for information about Terminal Number (TN) assignments and to [Table 25](#) for the connections to the NTMW07 Line/Trunk card at the cross-connect terminal.

Table 24
NTMW07 Line/Trunk Terminal Number Assignments (see Note)

Note: The NTMW07 can only be installed in slots 1 & 2, 3 & 4 and 5 & 6 in the main cabinet, and in slots 11 & 12, 13 & 14 and 15 & 16 in the expansion cabinet. The system recognizes the trunk card portion as even numbered card assignment (cards 1, 3, 5, 11, 13, 15).				
Card Slot	Card Assignment	First TN.....Last TN	Cable	Cabinet
1 & 2	1	01 00.....01 03	1 & 2	Main
	2	—		Main
3 & 4	3	03 00.....03 03	3 & 4	Main
	4	—		Main
5 & 6	5	05 00.....05 03	5 & 6	Main
	6	—		Main
7	7	Note	7	Main
8	8	Note	8	Main
9	9	Note	9	Main
10		Meridian Mail	—	Main
11 & 12	11	11 00.....11 03	11 & 12	Expansion
	12	—		Expansion
13 & 14	13	13 00.....13 03	13 & 14	Expansion
	14	—		Expansion
15 & 16	15	15 00.....15 03	15 & 16	Expansion
	16	—		Expansion
17	17	Note	17	Expansion
18	18	Note	18	Expansion
19	19	Note	19	Expansion
	20	Not used	—	Expansion

Table 25
NTMW07 Line/Trunk connections

Cable from cabinet		Unit	RAN mode	Paging mode	All other modes
Pair	Color		Designations		
1T 1R	W-BL BL-W	Unit 0	T0 R0	T0 R0	T0 R0
2T 2R	W-O O-W		CP MB	A PG	
3T 3R	W-G G-W	Unit 1	T1 R1	T1 R1	T1 R1
4T 4R	W-BR BR-W		CP MB	A PG	
5T 5R	W-S S-W	Unit 2	T2 R2	T2 R2	T2 R2
6T 6R	R-BL BL-R		CP MB	A PG	
7T 7R	R-O O-R	Unit 7	T3 R3	T3 R3	T3 R3
8T 8R	R-G G-R		CP MB	A PG	
9T 9R	R-BR BR-R	Unit 0	Note: These Units are for telephones only. Refer to Table 19 on page 159 for information about the Line portion of the NTMW07 Line/Trunk card.		
10T 10R	R-S S-R	Unit 1			
11T 11R	BK-BL BL-BK	Unit 2			
12T 12R	BK-O O-BK	Unit 3			
Note: Remaining pairs are spare					

Activating trunks

Refer to “Trunk models” on page 353 for a description of available pre-programmed trunk models.

The following procedures describe how to activate trunks.

Activating a default model trunk

Review the following procedure before starting. Since the administration menu times-out in thirty seconds, note the data that will be required to complete the procedure.

To determine corresponding TNs and trunks, check the location of trunk cards in the cabinet or by using LD 32.

Procedure 27

Activating a default model trunk

- 1 Lift the handset of the administration telephone.**
- 2 Enter the system’s administration Flexible Feature Code to access the administration menu.**

The prompt
“PASSWORD?”
appears.

- 3 Enter the default administration telephone password.**

Special dial tone is heard and the prompt
“TASK?”
appears in the top line of the character display.

The second line of the display reads
“1 ADD TRUNK”.

- 4 Enter “1” to select “1 ADD TRUNK”.**

The prompt
“ROUTE ACCESS?”
appears on the character display.

5 Enter the access code of the route to which a trunk is to be added and press the pound key (#).

If a valid route number is not entered,
“TN?”

does not appear and the screen remains the unchanged. If the type of trunk card does not match the route, the prompt
“ROUTE ACCESS?”
appears again, and overflow tone is heard.

6 Enter the TN in the CCUU format (Card Unit) and press the pound key.

In response to the prompt
“TN?”

enter a TN (Terminal Number) from one of the installed trunk cards.

The prompt

“MODEL”

appears. If an invalid TN is entered, the display shows “INVALID, TN?”
and another TN must be entered.

7 Press the digits to select a trunk model (as assigned in LD 16).

The character display shows

“OK”.

After a delay of approximately 4 seconds special dial tone is heard.

The sequence is repeated when the prompt

“TN?”

appears on the character display.

The next valid trunk TN is automatically incremented after each trunk is activated.

8 Terminate the sequence by hanging up the telephone receiver.

or

Repeat the sequence by going through the steps again.

By entering “#” when the procedure repeats, the next TN is automatically entered, and model type is prompted.

By entering “#” again, the previously accepted model is automatically entered.

Note: The model chosen during the first trunk activation sequence will be the default model for all subsequent trunks until the telephone is placed on-hook or a new trunk model number is entered.

End of Procedure

Activating a selected model trunk

Review the following procedure before starting. Since the administration menu times-out in thirty seconds, note the data that will be required to complete the procedure.

To determine corresponding TNs and trunks, check the location of trunk cards in the cabinet or by using LD 32.

Procedure 28

Activating a selected model trunk

1 Lift the handset of the administration telephone.

2 Enter the system's administration Flexible Feature Code to access the administration menu.

The prompt
"PASSWORD?"
appears.

3 Enter the default administration telephone password.

Special dial tone is heard and the prompt
"TASK?"
appears in the top line of the character display.

The second line of the display reads
"1 ADD TRUNK".

4 Enter "1" to select "1 ADD TRUNK".

The prompt
"ROUTE ACCESS?"
appears on the character display.

5 Enter the access code of the route to which a trunk is to be added and press the pound key (#).

If a valid route number is not entered,
"TN?"
does not appear and the screen remains the unchanged. If the type of trunk card does not match the route, the prompt
"ROUTE ACCESS?"
appears again, and overflow tone is heard.

6 Enter the TN in the CCUU format (Card Unit) and press the pound key.

In response to the prompt

“TN?”

enter a TN (Terminal Number) from one of the installed trunk cards.

The prompt

“MODEL”

appears. If an invalid TN is entered, the display shows “INVALID, TN?” and another TN must be entered.

7 Enter a trunk model number for the specified TN and route and press the pound key.

The character display shows

“OK”.

After a delay of approximately 4 seconds special dial tone is heard and the sequence is repeated when the prompt

“TN?”

appears on the character display.

8 Hang up the receiver or repeat the sequence.

The sequence ends when the last unit in the card is used and the program is complete, or when telephone receiver is on-hook.

Note: The model used for the first trunk activated in the sequence will be the default for all subsequent trunks until the telephone is hung up unless a new trunk model number is entered.

End of Procedure

Chapter 19 – Connecting an external alarm

General information

The Meridian 1 Option 11C Compact system can be equipped with an alarm port using an analog line connected to an Analog (2500/500)-type telephone or other similar type of ringing or alerting device.

The alarm operates when the system generates a message indicating a power fault.

Alarm port assigned in software

[Procedure 29](#) describes how to connect an external alarm.

Procedure 29

Connecting an alarm using an alarm port

- 1 **Install an analog (500/2500)-type line as described in “Chapter 17 – Connecting the telephones and attendant console” on page 147.**
- 2 **Install an analog (500/2500)-type telephone or other similar alerting device used as an alarm to the line.**
- 3 **Use LD 15 and make the following changes. Only the prompts requiring a response are listed. Press *return* in response to the other prompts.**
 - Enter CHG in response to the prompt REQ
 - Enter CDB in response to the prompt TYPE
 - Enter the customer number (0) in response to the prompt CUST

- Enter the DN of the line assigned as an alarm port in response to the prompt ALDN.

Note: If the assigned DN is inadvertently called the alarm will activate. To avoid false alarms, make sure that the DN is not consistent with the assigned numbering plan.

- Press *return* in response to the remaining prompts.

End of Procedure

Chapter 20—Meridian Mail Compact Option installation and maintenance

General information

This chapter describes the software procedures you need to know in order to switch between Meridian Mail Compact Option and the Option 11C Compact Switch, to stop and start the Meridian Mail Compact Option system, and to back up and restore a customer's Meridian Mail Compact Option data.

This chapter also describes how to install, upgrade and maintain the Meridian Mail Compact Option voicemail. It is divided into the following sections:

- [“Installing the Meridian Mail Compact Option hardware” on page 186](#)
 - [“Installing the hard drive” on page 186](#)
 - [“Installing the daughterboards” on page 188](#)
 - [“Installing the Meridian Mail Compact Option CPU \(68K\) card” on page 189](#)
- [“Meridian Mail Compact Option and the Option 11C Compact Switch” on page 191](#)
 - [“Switching between Meridian Mail Compact Option and the Option 11C Compact Switch” on page 192](#)
 - [“Logging on to the Option 11C Compact Switch” on page 191](#)
- “Enabling and disabling the console and AML data ports” on page 192
 - “Enabling the console and the AML data ports” on page 192
 - “Disabling the console and the AML data ports” on page 193

- “Stopping Meridian Mail Compact Option” on page 193
 - “Courtesying down the system” on page 193
- “Resetting Meridian Mail Compact Option” on page 194
 - “Resetting mail” on page 194
- [“Backing up the system” on page 258](#)
 - [“Backing up the system” on page 258](#)
 - [“Scheduling system backups” on page 259](#)
 - [“Installing the tape drive” on page 195](#)
 - [“Installing a printer” on page 201](#)
- [“Keycodes” on page 204](#)
 - [“Keycode composition” on page 204](#)
 - [“What is a keycode used for?” on page 205](#)
 - [“How the keycode works with the system” on page 205](#)
 - [“Defining the system with keycodes” on page 205](#)
 - [“What to do if your keycode is rejected” on page 206](#)
 - [“Understanding the keycode label” on page 207](#)
- [“Mail software installation” on page 209](#)
 - [“What to do before you begin” on page 209](#)
 - [“Performing a software installation” on page 209](#)
 - [“Defining Mail in the customer data block - overlay 15” on page 231](#)
 - [“Continuing the configuration” on page 234](#)
- [“Meridian Mail Compact Option upgrade” on page 235](#)
 - [“What to do before you begin” on page 235](#)
 - [“Performing a comprehensive upgrade” on page 235](#)
- [“Troubleshooting and maintenance” on page 264](#)
 - [“Troubleshooting” on page 264](#)

- [“Precautions” on page 264](#)
- [“Replacing components” on page 265](#)
- [“Problems during startup” on page 265](#)
- [“Problems during comprehensive upgrade” on page 268](#)
- [“Meridian Mail Compact Option card and hard drive replacement” on page 270](#)
- [“Tape drive problems” on page 275](#)
- [“Terminal problems” on page 277](#)
- [“Maintaining the external tape drive” on page 279](#)
- [“References” on page 283](#)

Installing the Meridian Mail Compact Option hardware

The following procedures describe the installation of the Meridian Mail Compact Option hardware.

CAUTION

Risk of equipment damage

Wear an ESD wristband connected to an appropriate ground. The Meridian Mail Compact Option hardware contains components that may be damaged by electro-static discharge.

Installing the hard drive

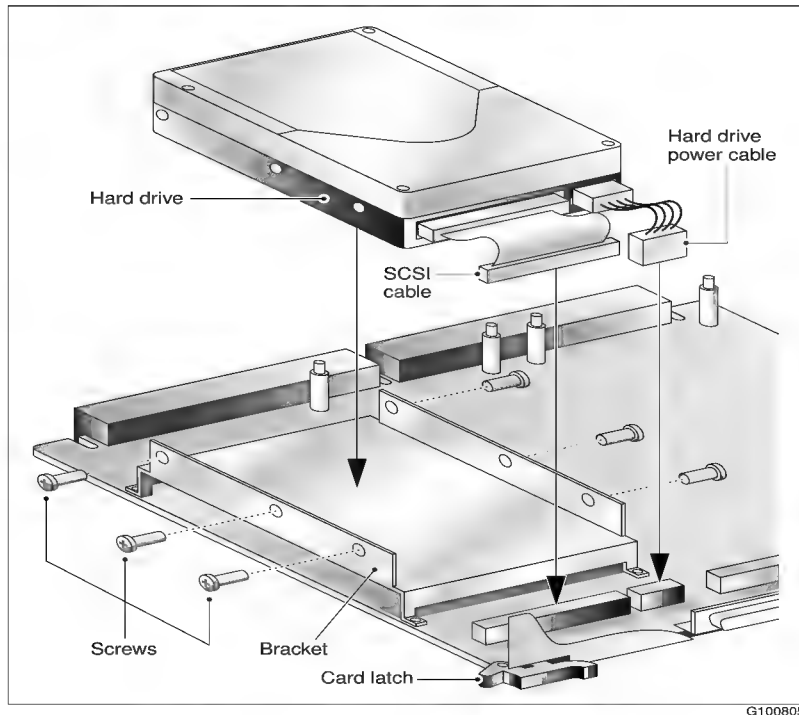
The following procedure describes installation of a new hard drive onto the CPU card in a new system. If you need to replace a hard drive see

[Procedure 56 on page 272.](#)

Procedure 30
Installing the hard drive

To install the hard drive, follow these steps.

Figure 38
The mail CPU card and the hard drive



- 1 Remove the mail CPU card and the hard drive from their protective packaging.
- 2 Lay the card on a flat surface and place the hard drive in the bracket as shown in Figure 38.
- 3 Secure the hard drive in the bracket with the screws.
- 4 Connect the hard drive SCSI cable and the power cable to the connectors in the card.

- 5 To connect the daughterboards go to the next procedure.

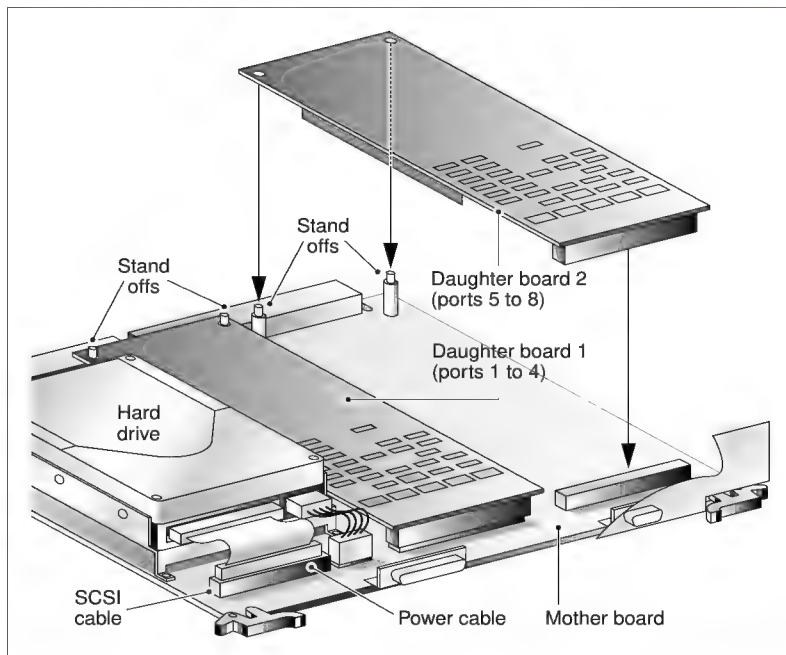
Installing the daughterboards

The following procedure describes installation of the daughterboards on the mail CPU card. To replace a daughterboard see [Procedure 55 on page 272](#).

Procedure 31 Installing the daughterboards

To install the daughterboards, follow these steps.

Figure 39
Mail CPU (68K) card assembly



G100806

- 1 Remove the daughterboards from their protective packaging.
- 2 Lay the mail CPU card on a flat surface and connect a daughterboard to the stand offs and connector closest to the hard drive. This is daughterboard 1 and is responsible for ports 1 to 4 on the Option Compact.

- 3 Connect the second daughterboard to the remaining two stand offs and the connector. This is daughterboard 2 and is responsible for ports 5 to 8 on the Option Compact.

Installing the Meridian Mail Compact Option CPU (68K) card

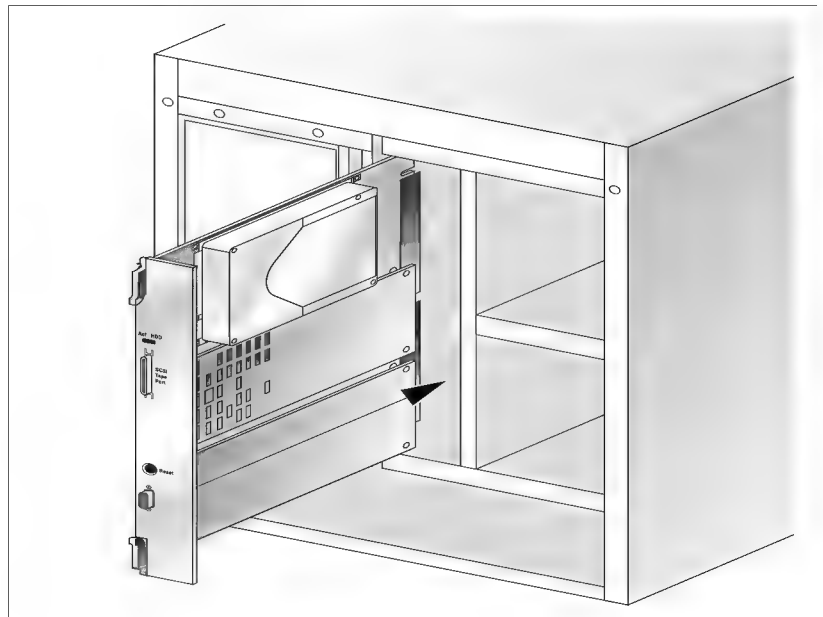
The following procedure describes installing the Meridian Mail Compact Option CPU (68K) card into the Meridian 1 Option 11C Compact card cage.

Procedure 32

Installing the mail CPU card into the card cage

Note: Before installing the mail (68K) CPU card, check that all connections on the card are secure.

Figure 40
Installing the mail card assembly



G100807

- 1** Hold the mail card by the card latches and orient it as shown in Figure 40.
- 2** Slide the card into slot 10 and push it into the connector at the back of the card cage.
- 3** Push firmly on the faceplate of the card to make sure you have a positive and secure connection with the connector back of the card cage.
- 4** Lock the card latches.
- 5** When the card is installed, connect any cables that are required to be connected to the faceplate connectors.

Meridian Mail Compact Option and the Option 11C Compact Switch

The following procedure describes how to go from Meridian Mail Compact Option to the Option 11C Compact Switch, and how to log on to the switch.

Procedure 33

Logging on to the Option 11C Compact Switch

To log on to the Option 11C Compact Switch, follow these steps

1 If you are in Meridian Mail Compact Option, press <Control>].

2 Press <Return>.

If the response is OVL111 nn TTY or OVL111 nn SL1 (where nn is a two-digit number), then someone else is logged on to the system. Wait until he or she logs off and start again at step 2.

If the response is OVL000>, then you are already logged on.

If the response is OVL111 nn IDLE or OVL111 nn BKGD, then you are ready to log on.

3 If you do not get any of these responses, enter **** <Return> and start again at step 2.

Note: If the system does not allow you to enter these four asterisks all in a row, simply enter them one line at a time; the system will automatically move the cursor to the next line.

4 Enter **LOGI** <Return>.

Note: For this and all other Option 11C Compact Switch commands, use uppercase letters only.

Depending on the status of the system, you may or may not be prompted for the switch password.

5 At the prompt, enter the Option 11C Compact Switch password.

You are presented with the > prompt.

End of Procedure

Procedure 34

Switching between Meridian Mail Compact Option and the Option 11C Compact Switch

You use the same terminal to access both Meridian Mail Compact Option and the Option 11C Compact Switch.

- 1 Enter **AX** <Return> to return to the Meridian Mail Compact Option display.

Note 1: You are returned to the system administrator screen you were using when you accessed the switch.

- 2 Press <Control>] to switch to the Meridian Option 11C Compact Switch display from Meridian Mail Compact Option.

End of Procedure

Enabling and disabling the console and AML data ports

Meridian Mail Compact Option uses two data ports on the Option 11C Compact Switch: port 8 is used by the system administration terminal, and port 9 is used as an Application Module Link (AML).

You must enable these ports before turning Meridian Mail Compact Option on, and disable them before turning Meridian Mail Compact Option off. The procedures you follow depend on the release number of the Meridian Mail Compact Option software running on your switch.

Procedure 35

Enabling the console and the AML data ports

- 1 Log on to the Option 11C Compact Switch. (Refer to Procedure 33.)
- 2 At the > prompt, enter the following:
LD 48 <Return>.
ENL AML 9 ACMS <Return> to establish the link on port 9.
- 3 Enter * * * * .

End of Procedure

Procedure 36**Disabling the console and the AML data ports**

- 1 Log on to the Option 11C Compact Switch. (Refer to Procedure 33.)
- 2 At the > prompt, enter the following:

LD 37 <Return>.

DIS TTY 8 <Return> to disable the console's data port

- 3 At the LSL TTY (Y/N) prompt, enter Y.
- 4 Enter * * * * .
- 5 At the > prompt, enter the following:

LD 48 <Return>.

DIS AML 9 <Return> to disable the link on port 9.

- 6 Enter * * * * .

End of Procedure

Stopping Meridian Mail Compact Option

Before working on the Meridian Mail Compact Option hardware or software, you must courtesy down the system. This allows anyone using Meridian Mail Compact Option to finish their session before the system is brought down. During this time, no users are allowed to log on to Meridian Mail Compact Option, and calls are directed to the Meridian Mail Compact Option attendant.

Procedure 37**Courtesying down the system**

- 1 Log on to Meridian Mail Compact Option at the system administrator's terminal.
- 2 From the Main Menu, choose
"5 System Status and Maintenance."→"1 System Status."
- 3 Press the <Courtesy Down System> softkey.

- 4 At the prompt, Do you want to courtesy down the system?, press the up arrow key to choose Yes, and press <Return>.

The display charts the progress of the courtesy down. Hardware locations are put out of service as users finish their sessions. System Status displays "CourtesyDown" when the process is complete.

- 5 Disable the data ports for the console and the AML. (Refer to Procedure 36.)

Note: At this point, Meridian Mail Compact Option can be worked on, the CPU card can be removed for maintenance or, an external tape drive can be attached.

End of Procedure

Resetting Meridian Mail Compact Option

The "Reset" button is located on the Meridian Mail Compact Option card faceplate. Press the Reset button after installing an external tape drive, after removing an external tape drive, or after performing troubleshooting and maintenance.

Note: Power up an external tape drive connected to the mail card.

Procedure 38 Resetting mail

- 1 Press the reset button on the Meridian Mail Compact Option card.
- 2 Enable the data ports for the console and the AML. (Refer to ["Enabling and disabling the console and AML data ports" on page 192.](#))
- 3 Enter **AX** <Return> to view the Meridian Mail Compact Option screen.
- 4 Wait until the system has loaded and the logon screen is displayed (approximately four minutes).
- 5 From the Main Menu, choose

"5 System Status and Maintenance."→"1 System Status."
- 6 Press the [Activate System] softkey.

End of Procedure

Installing the external tape drive and printer

The external tape drive is used to install and upgrade software, and to make backups of Meridian Mail Compact Option data. It can be attached permanently to the SCSI connector on the Meridian Mail Compact Option voice mail card or installed only when needed.

Installing the tape drive

Procedure 39

Installing the external tape drive

- 1 Unless you are installing Meridian Mail Compact Option for the first time, courtesy down. To courtesy-down follow Procedure 37.
- 2 Set the power selector switch at the back of the tape drive to the correct voltage for your area.
- 3 Plug the tape drive's power cord into the same circuit used by the Option 11C Compact cabinet.
- 4 Set the SCSI address for the appropriate tape drive to 1 as described in Table 26.
- 5 If you have an Archive tape drive, go to step 6. If you have a Tandberg tape drive go to step 7.
- 6 For the Archive tape drive, plug the SCSI cable into either SCSI connector and plug a SCSI terminator (A0379544) into the other connector.
- 7 For the Tandberg tape drive, plug the SCSI cable into the the SCSI connector marked IN on the back of the tape drive.
Note: Unlike the Archive drive, the Tandberg drive has internal terminating resistors. You *must not* connect an external SCSI terminator to the SCSI connector marked OUT (see Figure 42) on the back of the Tandberg tape drive. Leave the OUT connector unused.
- 8 For either tape drive, connect the other end of the tape drive cable to the SCSI connector on the faceplate of the Meridian Mail Compact Option card.
- 9 Run the grounding wire back down through the bottom of the cage and affix it behind the bar that runs the width of the cabinet, using one of the screws holding the bar to the front of the card cage.

Note: Procedure continues on [page 197](#).

Table 26
Setting the tape drive SCSI ID

Tape drive	To set SCSI ID
Archive Viper or 2150 ES	Press the up and down buttons until 1 appears in the SCSI ID window. (See Figure 41.)
Tandberg TDC4220	Fit a pen tip into the button above or below the SCSI ID window and push until 1 is displayed in the window. (See Figure 42.)

Figure 41
SCSI setting for Archive tape drive

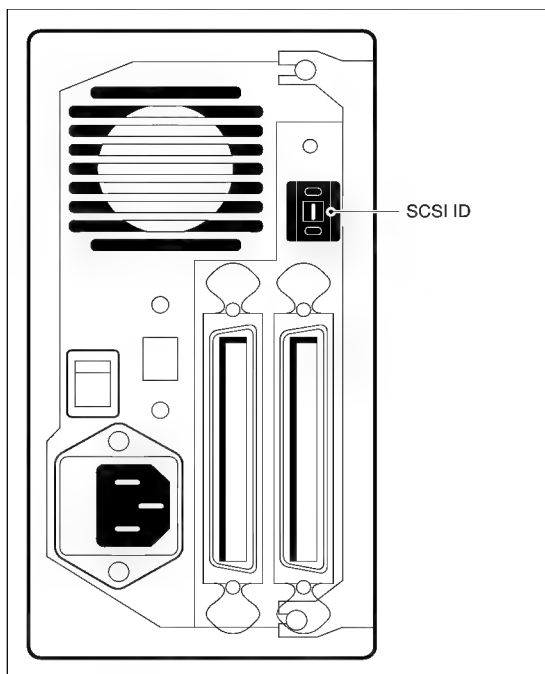
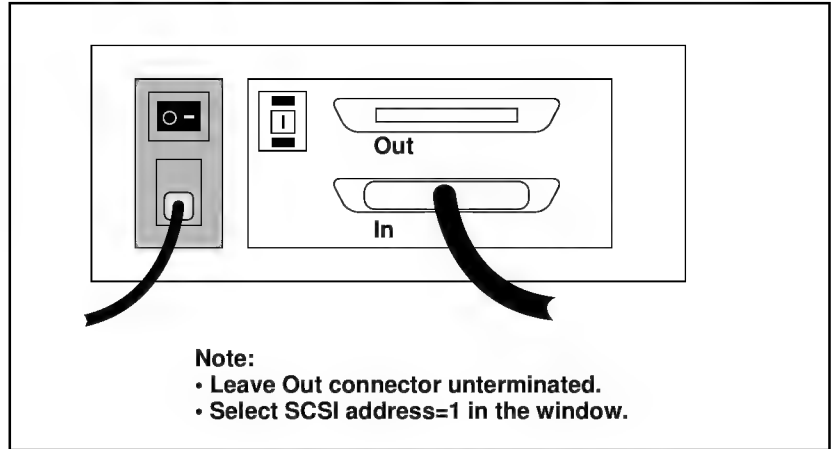


Figure 42
SCSI setting for TandbergTDC 4220 tape drive—Rear view

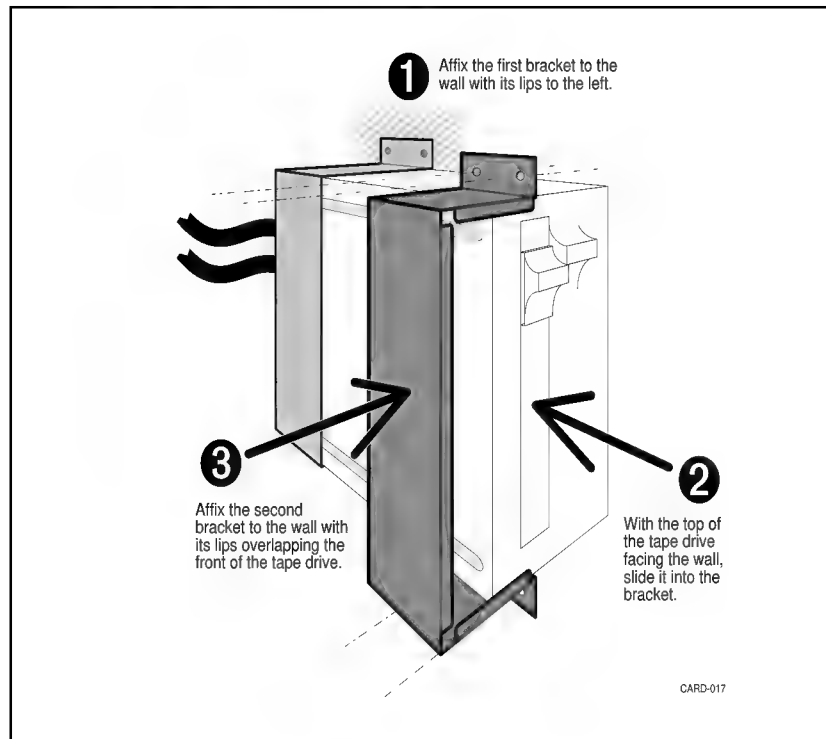


- 10 If desired, mount the external tape drive below and to the right of the cabinet, following the instructions in Figure 43. It should be positioned so that it does not interfere with the cables that run out of the bottom of the Meridian Mail Compact Option cabinet. Avoid mounting the tape drive where it will be subjected to continuous shock or vibration.
- 11 Ensure that the tape drive's power is on.
- 12 To reset Meridian Mail Compact Option, follow Procedure 38.

Note: If you are installing Meridian Mail Compact Option for the first time, refer instead to the installation procedures in ["Mail software installation" on page 209](#).

End of Procedure

Figure 43
Mounting the external tape drive



Procedure 40
Inserting a tape

- 1 Position tapes with the label side to the top of the tape drive and the opening towards the front of the drive.
Note: This applies to Viper tape drives only. If the tape drive has been mounted correctly on the wall, insert tapes with the label facing the wall and the opening facing upwards.
- 2 Insert the tape in the appropriate tape drive as described in Table 27.

Table 27
Inserting a tape

Tape drive	Directions
Archive tape drive	Push the tape all the way into the drive and slide the handle until the tape cartridge locks into place.
Tandberg tape drive	Press the Release button to open the door on the tape drive, and insert the tape. A diagram on the inside tape drive door indicates how to orient the tape.

- 3** Gently close the tape drive door.

Note: The tapes you receive from Nortel are 3M brand DC6250 tapes (part number A0368760). Be sure to use this tape format for your backups.

————— *End of Procedure* —————

Procedure 41
Removing a tape

Remove the tape from the appropriate tape drive as described in Table 28.

CAUTION**Risk of damage**

Do not attempt to remove a tape when the drive is running, or the tape drive could be damaged.

Table 28
Removing a tape from the tape drive

If	then
Archive Viper tape drive	slide the handle on the front of the drive until the tape is ejected from the drive.
Tandberg tape drive	press the Release button to open the door, and the tape will be ejected from the drive.

Table 29
Tandberg Panther SE2000 tape drive status

Light status	Description
Steady	The tape is in and idle.
Flashing	The tape is in and spinning.
Off	The tape is out or the power is off.

Procedure 42
Removing the external tape drive

For systems not equipped with a permanently installed external tape drive, the Meridian Mail Compact Option representative is responsible for all software procedures that require a tape drive and should, therefore, include a tape drive as part of the standard equipment.

To remove the external tape drive, follow these steps:

- 1 Refer to the procedure "[Installing the external tape drive](#)" on page 195 to courtesy down Meridian Mail Compact Option.
- 2 Turn off the power to the tape drive and unplug it.
- 3 Detach the grounding wire from the Meridian Mail Compact Option cabinet.
- 4 Unplug the SCSI cable from the Meridian Mail Compact Option card and install a SCSI terminator in its place.
- 5 To reset Meridian Mail Compact Option, follow Procedure 38.

————— *End of Procedure* —————

Installing a printer

Connecting a printer to the system administrator's terminal allows the administrator to print reports using Meridian Mail Compact Option's Operational Measurements function.

You can also configure Meridian Mail Compact Option to print System Error and Event Reports (SEERs) on the same printer as they are generated. Refer to the *Meridian Mail Compact Option System Administration Guide* (NTP 555-7001-333) for more information.

SEERs contain information about every system event and error that occurs on the Meridian Mail Compact Option system. For more information on the content of SEERs, refer to *Maintenance Messages (SEERs) Reference Manual* (NTP 555-7001-510).

Meridian Mail Compact Option supports the printer: the LA75 Plus Companion Printer. If the printer you are installing is a different model, match its settings with those described in Table 30 on page 203, and Figure 44 on page 202, and use the setup procedures described in the printer's owner's manual.

Procedure 43

Connecting and configuring the LA75 Plus Companion printer

- 1 Connect the printer to the appropriate port at the rear of the system administrator's terminal using the following cables:

For VT220 terminals Connect the printer to the H87575-A adapter using a BC16E-10 cable, and connect the adapter to the port labeled "PR" using an A0369499 cable.

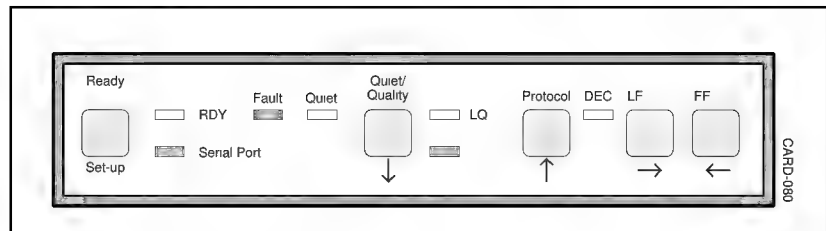
For VT320, VT420, and VT520 terminals Connect the printer to the port labeled "Printer Port" using a BC16E-10 cable.

For NT220 terminals Connect the printer to the H87575-A adapter using a BC16E-10 cable, and connect the adapter to the port labeled "Auxiliary" using an NTND82AA/AB cable.

For HP700/22 terminals Connect the printer to the port labeled "Printer" using an A0369499 cable.

For HP700/32 terminals Connect the printer to the H87575-A adapter using a BC16E-10 cable, and connect the adapter to the port labeled "Port 2" using an A0369499 cable.

- 2 Plug the printer's AC power cord into an appropriate outlet, and turn on the power. There is no need for it to be on the same circuit as the Meridian Mail Compact Option cabinet.
- 3 Ensure that the printer is turned off.
- 4 Press and hold the setup button on the front control panel of the printer and, at the same time, power on the printer.

Figure 44**The LA75 Plus Companion printer control panel**

- 5 Release the setup button one to two seconds after powering on.

The printer prints a list of the default settings. When the list is complete, it goes back to the beginning of the list, reprints the first setting, and stops. (Refer to Table 30 on page 203. Additional settings are all defaults.)

Table 30
LA75 Plus Companion printer default settings

Feature number	Name	Value number	Name
Generic 1	Protocol at power-up	3	Port dependent
Generic 2	Form length	9	11 inches (A)
Generic 3	Vertical pitch	4	6 lines per inch
Generic 4	Automatic advance	1	Selected
Generic 5	Print quality control	1	Software control
Generic 6	Port selection	1	Serial port
Generic 7	Baud rate	7	9600
Generic 8	Data bits and parity	7	8-none
Generic 9	Buffer control	1	XON/XOFF
Generic 10	Error beep	1	One beep
Generic 11	Typestyle	1	Internal
Generic 12	Input buffer size	1	8K
Generic 13	Disconnect on fault	1	Not selected
DEC 1	Horizontal pitch	7	10 Char. per in. (80 Col)
DEC 2	GO character pitch	1	US ASCII
DEC 3	User pref. char. set	1	DEC Supplemental
DEC 4	Printer ID	4	Conf. Level 2 (LA75 Plus)
DEC 5	Text mode right margin	2	Wrap

- 6 If you want to change the current setting, press the left arrow key on the control panel.
The current feature number is printed again with the new setting.
- 7 If this is not the setting you require, press the left arrow button again and the next setting for that feature number is printed. Refer to the printer's user manual for the list of options available for each feature.
- 8 Repeat 7 until the option you want for this feature is printed.
- 9 Press the down arrow to move to the next feature.
- 10 Repeat 6 to 9 until you have changed all the settings to your satisfaction.
- 11 Press the setup button on the control panel to save the settings.
For more information, consult the printer's owner's manual.

End of Procedure

Keycodes

This section describes what keycodes are, and how and why they are used.

The keycode in Meridian Mail Compact Option contains information about the features and hardware configuration purchased by the customer. If the system needs to be changed or expanded, a new keycode can be obtained from Nortel.

Keycode composition

A keycode consists of 20 alphanumeric characters divided into 5 groups of 4 characters. Keycodes do not contain information about which languages are to be enabled, or the type of cards you have installed.

Example

You may obtain a keycode that will enable you to add features and increase storage capacity.

What is a keycode used for?

A keycode will permit you to do certain system operations. These system operations are:

- software installation
- comprehensive upgrade, which can combine any one or more of the following:
 - language expansion
 - feature expansion
 - hardware modification
 - conversion

How the keycode works with the system

For each system operation that requires a keycode, the software prompts you to enter each of the five groups of characters that make up a 20-character keycode.

Once the keycode is entered, the system software compares the information in the keycode with the present hardware/software configuration or the desired configuration, or both, to make sure the proposed operation is valid.

Example

This is an example of a keycode:

D2G8 ESYM YCE6 7705 0J1U

Note: Case does not matter when entering keycodes, however, certain letters cannot be used because of their similarity to numbers. These letters are: B, I, O, and Z because they resemble the numbers: 8, 1, 0, and 2.

Defining the system with keycodes

Keycodes define the system by

- the maximum number of storage hours permitted
- the maximum number of full service voice ports

This is the number of full service voice ports that has been purchased with the keycode. This means, for instance, that you can only configure your system up to this number of full service voice ports without purchasing a new keycode.

- number of physical DSP ports (= hardware locations)
- number of languages permitted
- features permitted

What to do if your keycode is rejected

Process

If the keycode is rejected, either reenter the keycode (it may have been entered incorrectly), or abort the procedure and reboot the system into service.

Note: At this point, your system has not been altered because the operation was stopped when the keycode was rejected.

Using the keycode

The keycode on the keycode label can be used to perform either a software installation or a comprehensive upgrade, which includes any one or combination of conversion, feature expansion, hardware modification, and language expansion. For the procedure on comprehensive upgrade, see [“Meridian Mail Compact Option upgrade” on page 235](#). For the procedure on software installation, see [“Mail software installation” on page 209](#).

Errors

If an error is made during entry of a keycode, you have two opportunities to correct it.

- 1) If you realize you made a typing error during the entry of a particular group of four alphanumeric characters, you may simply backspace and enter the correct characters.
- 2) If you have already pressed <Return> following the entry of a wrong group of characters, you can start again after entering the remainder of the keycode.

Understanding the keycode label

Definition

Keycode labels identify the keycode that you purchased with your system. A set of these labels is attached to your tapes and a second set is provided as a loose item with your shipped system. Store the second set in a safe location.

Keycode label

The following illustrates a typical keycode label.

MM SERIAL NBR		Distributor End User	NTI
123456		98/04/04	M0001
PBX Serial Nbr		LANGUAGE(S)	
123456		2	
		FEATURE(S)	HOURS
			24
Voice Menus Networking Dual Lang Prompting Canadian French			
UNIVERSAL KEYCODE			
Physical	8	58XT L3P5 3W1N TS499C23	
Full Serv	6		
BasicServ	2		
Platform	Compact Option		

Reading the keycode label

The following table provides descriptions for the label headings that you will find on the keycode label.

Label Heading	Description
MM Serial NBR	This is the serial number for the platform you have purchased.
PBX Serial NBR	This is the serial number for your PBX.
NTI	Customer order number.
Languages	The number of languages that can be installed on the system.
Hours	The number of hours of storage the system can have.
Features	The types of features supported.
Universal Keycode	The keycode. Note the five blocks of alphanumeric code.

Note: Also available on the keycode label is a count of how many physical ports and voice ports are available with the keycode, and the type of system with which the keycode will be used.

Mail software installation

This section explains how the Release 11 software is installed on the Meridian Mail Compact Option system. These procedures are most often performed during a new equipment installation, but can also be performed after a disk crash, or when you do not have backup tapes.

What to do before you begin

Checklist

This list of points should be followed when you are installing the Meridian Mail Compact Option software.

- Determine the port capacity of your Meridian Mail Compact Option system.
- Make sure that there is paper in the printer. (If your printer runs out of paper during the procedure, your screen will freeze.)
- Enable your terminal's autoprnt mode (<Control><W> followed by <P>) in order to capture everything that appears on your screen. If you have to reboot the system for any reason, you will have to reenable the auto-print mode.
- Obtain a Meridian Mail Compact Option Install/data tape.
- Obtain the keycode from Nortel.
- Verify that all the appropriate hardware is installed.

Performing a software installation

This section provides information about installing Meridian Mail Compact Option software.

The intent of the procedure is to provide a general look at the installation and may not cover your specific configuration.

Beginning the software installation

It is assumed the following has been done:

- all hardware has been installed
- the tapedrive is attached to the mail card

Use the following procedure to install a Compact Option mail.

Step	Action
1	Insert the Meridian Mail Compact Option Install/data tape into the tape drive and make sure the tape drive is powered up. Note: Refer to Procedure 40 of this guide for tape insertion instructions.
2	Press the reset button on the mail card.
3	Login to the Option 11C Compact switch and enable AML 9. Refer to Procedure 35.
4	Wait for the Meridian Mail Compact Option system to boot. Type AX to view the MMI screen. Result Once loaded, the System Installation and Modification Menu is displayed.

```
System Installation & Modification Menu
-----
1  Install an MM11 system
2  Comprehensive Upgrade
3  More Utilities

Please enter the operation number:
```

Step	Action
5	To choose installation, press the up or down arrow keys until a "1" appears after the following prompt. Please enter the operation number: Type "1", then press <Return>. The following statement appears. You have chosen to install an MM11system. Do you wish to continue? No (Yes)
6	Do you wish to continue? If No, go to step 9. If Yes, go to steps 7 and 8.
7	Press the up or down arrow key to select Yes, then press <Return>. The following message appears. Install the MM11 system
8	Go to the next procedure for entry of the keycode number.
9	Press the up or down arrow key to select No, then press <Return>. Result You are returned to the main menu.

Entering the keycode

To enter the keycode, follow these steps.

Step	Action
1	Start entering the 20-character keycode four letters at a time, as prompted, pressing <Return> after each four-character entry. Example: The following shows character block prompts. Enter 4 character Block 1:D2G8 Enter 4 character Block 2:ESYM and so on. The following cases are considered.

IF you enter	THEN the system responds with
the wrong number of characters	Please enter 4 characters Enter 4 Character Block 1:
invalid characters	That Block contains invalid Characters - Please Enter Again
the wrong keycode	That Keycode was invalid. Would you like to try again? Yes (No)

Step**Action**

- 2** Once the keycode is entered, the system displays the first keycode screen listing your system configuration.

Result The following screen is displayed.

```
System Configuration
      Old System      New System
Software Release :    11.19.4
Serial Number   :    10000027
Platform        :    Compact Option
Nodes           :         1
Storage Hours   :        10
Max Languages    :         1

CHANNELS:
Max Full Service :         4
Min Multimedia   :         0
Max Voice        :         8
Total Physical   :         8
Basic Service    :         4
NMS Locations    :         0
-----
Enter the Keycode for the serial number 10000027 :
Enter 4 Character Block 1 : YQKF
Enter 4 Character Block 2 : 7W3S
Enter 4 Character Block 3 : 3DJR
Enter 4 Character Block 4 : DFJG
Enter 4 Character Block 5 : 6TPC
Is this correct ? Yes
```

Note: The display above is intended only as an example of this screen. Your keycode screen may differ.

- 3** Is this correct?
If Yes, go to step 4.
If No, go to step 7.

Step	Action
------	--------

- Press the up or down arrow keys to select Yes, and press <Return>.

Result A second keycode screen listing the system features is displayed.

feature	Old	New	feature	Old	New
SMDI	:		Voiceforms	:	
Meridian Access	:		VHUIF	:	
AdminPlus	:		Multiple Admin	:	
AMIS	:		Meridian Connections	:	
HVS	:		Fax On Demand	:	
Networking	:	X	Multiple Customer	:	
NMS	:		Bilingual Prompting	:	
Outcalling	:		Voice Menus	:	X
Multi SMDI	:				

Is this correct ? Yes					

Note: The figure above is intended only as an example of this screen. Your keycode screen may differ in feature specifications.

- Is this correct?
If Yes, go to step 6.
If No, go to step 7.
- Press the up or down arrow keys to select Yes, and press <Return>.
Go to “Entering your customer name” on page 215.
- If the system configuration is not correct, contact your Nortel representative to obtain another keycode.

Entering your customer name

To change the customer name follow these steps.

Step	Action
1	When you confirm that your system features are correct, the system prompts: Customer Name: MeridianMail This name is assigned by you and may be an alpha-numeric string up to 30 characters long.
2	Press backspace to delete the default customer name (MeridianMail).
3	Type in the desired name and press <Return>.
4	Once the customer name is entered, go to “Selecting languages” on page 215

Selecting languages

To select languages for your system, follow these steps.

Step	Action
1	When the languages screen appears, with the prompt: Select operation: AddLanguage press <Return> to select a language(s) for your voice prompts. Result The following screen is displayed.

Step	Action
------	--------

```

      Installed Languages      Selected Languages

You may include 1 more languages
-----
Select operation : AddLanguage

Languages Available from this tape are:
1 - American English
2 - Canadian French
3 - Latin American Spanish
4 - Brazilian Portuguese
5 - German
6 - Japanese
7 - From Another Tape

Enter the number of the language you require: 1

```

Note: Your languages display may allow you to include more than one language depending on your keycode, and may have a different selection of languages.

- 2 Press the up or down arrow key until the desired number of the language you require is displayed on the screen (or press backspace and type a number), then press <Return>.

The following prompt is displayed.

```
You have chosen (language name) .
```

Note: At this point, if you choose either "0" or the number for the **From Another Tape** option without selecting a language, you are advised that you must choose at least one language from this menu and the selection prompt is repeated. If you choose **From Another Tape**, you will be prompted to insert the other tape at the end of the installation. See "Continuing the software installation" on page 229.

```
Is this correct? No (Yes)
```

- 3 Is this correct?
If No, go to step 4.
If Yes, go to step 5.
- 4 If you select No, the language prompt is repeated.

Step	Action
5	Select Yes, then press <Return>. Note: If your keycode calls for more than one language, the prompt is repeated until the number of languages specified in the keycode has been selected. When you have finished your language selection(s), select Done, and press <Return>. Result The Call Progress Tone Detection (CPTD) screen is displayed.
6	Go to “Selecting call progress tone detection” on page 217.

Selecting call progress tone detection

To select the Call Progress Tone Detection (CPTD) number for your country, follow these steps.

Step	Action
1	You are provided with the current CPTD selection and the following prompt: Select operation: Done (Change)
2	Select operation: If you select Done, go to step 3. If you select Change, go to step 4.

Step	Action
------	--------

- 3 Select Change, then press <Return>.

Result The following CPTD screen is displayed.

```

The current CPTD Selection is : Generic - Ver. Fe94
-----
Select operation : Change
 1 : Generic - Ver. Fe94    2 : Australia             3 : Austria
 4 : Belgium              5 : Canada                6 : Denmark
 7 : Finland              8 : France                9 : Germany
10 : Hong Kong            11 : India                12 : Ireland
13 : Italy                14 : Japan               15 : Korea
16 : Malaysia            17 : Netherlands         18 : New Zealand
19 : Norway              20 : Portugal            21 : Russia
22 : Saudi Arabia        23 : Singapore          24 : Sweden
25 : Switzerland         26 : Taiwan              27 : Turkey
28 : United Kingdom      29 : United States       30 : China
Please enter the CPTD country index number : 1

```

Press the up or down arrow key until the desired country number is displayed on the screen (or press backspace and enter the number), then press <Return>.

- 4 Go to “Entering DSP parameters” on page 219.
-

Entering DSP parameters

To review or change the DSP parameters on your system, follow these steps

Step	Action
------	--------

- | | |
|---|--|
| 1 | From the previous procedure, press <Return>. |
|---|--|

Result The following DSP parameters screen is displayed.

```
DSP Encoding Type           : MuLaw
Disable Silence Compression : No

Transmit Level       : 0          Disable AGC           : No
Receive Level       : 0          AGC Center             : -20
DTR Reject Level    : -36        Hook Flash Pulse      : 320
DTR Max Accept Level : 1        TeleScan Debounce     : 128
                                   TeleScan Ring Time      : 1024
-----
Select operation : Change
```

You have four selections at the “Select operations” prompt which are revealed each time you press the up or down arrow keys. Select

- “Done” if you are satisfied with the default values or after you have completed all the parameter changes
 - “Change” if any of the parameters require changing. You will be stepped through each parameter
 - “Redraw” if your screen becomes overwritten with errant characters and you need to clear them from your DSP screen
 - “Reset” if you decide to go back to the default settings after you have changed them
- 2 At the “Select operation:” prompt,
- if Done, go to step 4.
- If Change, go to step 3.

Step	Action
------	--------

- | | |
|---|---|
| 3 | Select Change, and press <Return>. The following prompts are displayed. |
|---|---|

DSP Encoding Type: MuLaw (Alaw)

ATTENTION

If the above DSP encoding parameter is set incorrectly, severely degraded voice quality may result.

Note: Do not change DSP parameters unless you are instructed to by Nortel.

Example: The following screen is provided as an example of how your display may look.

```

DSP Encoding Type           : MuLaw
Disable Silence Compression : No

Transmit Level              : 0          Disable AGC              : No
Receive Level               : 0          AGC Center               : -20
DTR Reject Level            : -36        Hook Flash Pulse        : 320
DTR Max Accept Level        : 1          TeleScan Debounce         : 128
                                   TeleScan Ring Time        : 1024
-----
Select operation : Change
DSP Encoding Type           : MuLaw
Disable Silence Compression : No
Do you wish to change other DSP parameters ? Yes
Transmit Level              : 0
Receive Level               : 0
DTR Reject Level            : (-36)
DTR Max Accept Level        : (1)
Disable AGC                 : No
AGC Center                  : -20
Hook Flash Pulse            : 320
TeleScan Debounce           : (128)
TeleScan Ring Time          : 1024
Select operation : Change
    
```

Note: For a list of DSP parameters, Table 31.

Step	Action						
4	At the prompt “Select operation:”						
	<table> <tr> <th>IF you select</th><th>THEN go to</th></tr> <tr> <td>Done</td><td>next procedure.</td></tr> <tr> <td>Change or Reset</td><td>step 3.</td></tr> </table>	IF you select	THEN go to	Done	next procedure.	Change or Reset	step 3.
IF you select	THEN go to						
Done	next procedure.						
Change or Reset	step 3.						

Table 31 DSP parameters

DSP parameter name	Default value	Range
DSP encoding type	Mulaw	Mulaw, Alaw
Disable silence compression	No	No, Yes
Transmit level	0	-10 to +10 dBm
Receive level	0	-10 to +10 dBm
DTR reject level	-57	-60 to -30 dB (increments of 3 dB)
*DTR Max accept level	1	-11, -8, -5, -2, 1, or 4 dBm
Disable AGC	No	No, Yes
*AGC center	-20	-20 to -10 dBm
Hook flash pulse	320	304, 320, 336, . . . 1024 (increments of 16)
Telescan debounce	128	96, 112, 128, . . . 512 (increments of 16)
Telescan ring time	1024	224 to 1024 (increments of 16)

Note: DSP parameters marked with an “*” cannot be modified. They are reserved for future use.

Defining voice port hardware locations

To define your voice channels for entries into the Voice Port Hardware Location table, follow these steps.

Step	Action
------	--------

- 1
- Select Done on the DSP parameters.

Result The following voice port screen is displayed.

Note: The table below depends on your system configuration as defined by your keycode and the installed system hardware. Your display may differ.

```
Node  ----- Voice Port Hardware Location -----
      1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16
      1 Vf Vf Vf Vf Vb Vb Vb Vb
-----
Select operation : DetailedDisplay
```

You have four selections at the “Select operations” prompt which are revealed each time you press the up or down arrow keys. Select

- “Detailed Display” if you need to see a detailed display of all the hardware locations on a particular node or range of nodes.
 - “Change” if you want to change the port definition on a range of hardware locations on or across nodes and to modify default values to the switch agent configuration.
 - “Done” if you are satisfied with the default values or your changes.
 - “Reset” if you decide to go back to the default settings after you have changed them.
- 2
- Press the up or down arrow key until the desired choice is displayed on the screen, then press <Return>.

Example: Select Change, then press <Return>.

Note: Choices are Voice_Full and Voice_Basic. All entries are changed by pressing the up or down arrow keys, and then pressing <Return> which moves you on to the next value.

Note: Meridian Mail Compact Option systems have only 1 node, so enter 1 after the First and Last Node in the screen in step 3.

Step	Action
------	--------

- 3 When you select your ACDDN and press <Return>, the table will change to display your changes, as in the following example.

```

Node      1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16
1 Vf Vf Vf Vf Vb Vb Vb Vb Vb Vb Vb Vb Vb Vb Vb
-----
Select operation : Change
Port Type       : Voice_Basic
First Node      : 1
First Location   : 4
Last Node       : 1
Last Location    : 4
ACDDN          : 7000
Select operation : DetailedDisplay

```

Result Notice that one more Vb port has been added at port 3.

- 4 Select DetailedDisplay, then press <Return>.

Note: You are asked to provide node ranges and location ranges to view the hardware locations on a particular node or range of nodes.

Result The following example shows that node 1 (only one node can be specified for Meridian Mail Compact Option) and locations 1 to 8 have been specified.

Num	VP	Locn	Type	ACD	SECDN	Loop	Shlf	Crd	Unit	Density	Switch
1- 1	1-2-1-1	Vf	7000	7800				10	0	Octal	Meridian_1
1- 2	1-2-1-2	Vf	7000	7801				10	8	Octal	Meridian_1
1- 3	1-2-2-1	Vf	7000	7802				10	1	Octal	Meridian_1
1- 4	1-2-2-2	Vb	7000	7803				10	9	Octal	Meridian_1
1- 5	1-3-1-1	Vb	7000	7804				10	2	Octal	Meridian_1
1- 6	1-3-1-2	Vb	7000	7805				10	10	Octal	Meridian_1
1- 7	1-3-2-1	Vb	7000	7806				10	3	Octal	Meridian_1
1- 8	1-3-2-2	Vb	7000	7807				10	11	Octal	Meridian_1

Press RETURN to continue:

Step	Action
------	--------

5 Press <Return>.

Result The Voice Port Hardware Location table (see below) is displayed again.

```

Node ----- Voice Port Hardware Location -----
      1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16
      1  Vf Vf Vf Vb Vb Vb Vb Vb
-----
Select operation : Done
Is this correct? Yes

```

If you are satisfied with the changes, select Done. The following prompt is displayed.

Is this correct? No (Yes)

Note: At this point in the procedure, Reset and Change are still available as choices if you wish to do anything to the settings.

ATTENTION

If after selecting Change again, or Done you receive an error, there may be an incorrect assignment of the voice ports to the link. The error must be corrected before the user may proceed.

6 Is this correct?

If No, go to step 7.

If Yes, go to step 8.

7 Select No, then press <Return>

Result You are returned to the Select Operation mode at step 1.

8 Go to "Assigning the dataport locations" on page 225.

Assigning the dataport locations

To assign dataport locations to your system, follow these steps.

Step	Action
------	--------

- | | |
|---|--|
| 1 | From the previous procedure.
Select Yes, then press <Return>. |
|---|--|

Result The following dataport configuration table is displayed.

Note: The table below depends on your system configuration as defined by your keycode and the installed system hardware. Your display may differ.

Node	Card	Type	Port 1	Port 2	Port 3	Port 4
1	1	ESBC	CONSOLE	CSL1	DIAGNOST	

Please assign the data port locations.

Select operation : Display█

You have two selections at the “Select operation” prompt. When making selections, press the up or down arrow keys until the desired response is displayed on the screen, then press <Return>. Select

- “Display” if you wish to see a detailed display of all the dataport locations on a particular node or range of nodes.
- “Done” to continue with the software installation.

- | | |
|---|--|
| 2 | Select operation:
If Display, go to step 3.
If Done, go to step 5. |
|---|--|

Step	Action
------	--------

- 3 Select Display, then press <Return>.

Result The following detailed dataport configuration table with your default settings is displayed.

```
The following dataports are on this system :  
  
Node 1, Type  ESBC, Port 1: Dataport Name = CONSOLE  
Node 1, Type  ESBC, Port 2: Dataport Name = CSL1  
Node 1, Type  ESBC, Port 3: Dataport Name = DIAGNOSTIC  
  
Press RETURN to continue: █
```

- 4 Press <Return>.

Result You are returned to the dataport locations table.

- 5 Select Done, then press <Return>.

- 6 Go to [“Default datafill” on page 227.](#)
-

Default datafill

To default datafill your system, follow these steps.

Step	Action
1	The following screen appears after selecting Done from the previous procedure <pre>Default Datafill includes any combination of the following: Default Users, Default Voice Services, and Default Voice Service DN Table. Do you want Default Data fill? No</pre>
2	Do you want Default Data fill? If No, go to "Continuing the software installation" on page 229 If Yes, go to step 3.
3	Select Yes, then press <Return>. Result The following screen is displayed.

```
Default Datafill includes any combination of the following:
Default Users, Default Voice Services, and Default Voice Service DN Table.
Do you want Default Data fill? Yes
Do you want Default Users Created? Yes
Number of Default Users to be Created? 1
```

Do you want default users created?

If No, go to ["Continuing the software installation" on page 229](#).

If Yes, go to step 4.

- 4 Select Yes, and press <Return>.

Step	Action
5	The following line is displayed: Number of Default Users to be Created? Respond by entering a number between 1 and 192 (inclusive) and press <Return>. Note: If you respond outside the range, the message “Enter the number in the range 1 to 192.”
6	The following line is displayed: What is the Starting DN of the Default Users? 2200 Respond by entering a valid value for the starting DN (in this case, between 2000 and 2200).
7	Once you have selected the DN, the following line is displayed: Do you want Default Voice Services? If No, go to, “Continuing the software installation” on page 229 If Yes, go to step 8.
8	Select Yes, the following line is displayed: Do you want Default Voice Services DN table Entries Created? If No, go to, “Continuing the software installation” on page 229. If Yes, go to, “Continuing the software installation” on page 229.

Continuing the software installation

To continue the software installation, reenter information, or to abort the installation, follow these steps.

Step	Action
1	After selecting the starting DN , and pressing <Return>. The following prompt is displayed. All required information has been input. Do you wish to continue, re-enter information, or abort? Continue
2	Do you wish to continue, re-enter information, or abort? If Continue, go to steps 3, 4, and 5. If Re-enter, go to step 6. If Abort, go to step 7.
3	Select Continue, then press <Return>. Result The system runs various routines. When these routines are completed, the following message is displayed. The operation successfully completed. Remove the tape when it finishes rewinding and boot into Service. Shutting down tape server #TAPE:MMTAPE1>

Step	Action
4	Remove the tape and press the reset button on the Meridian Mail Compact Option card. Result Various system routines are displayed and the Meridian Mail Compact Option logon screen appears. Normal system administration operations may begin.
	ATTENTION Store the Install/data tape in a safe place. This will ensure that if you need to reinstall or modify the system, you will have quick access to the tape.
5	Logon using the system default password ADMINPWD (not case sensitive), then change the password immediately.
6	Select Re-enter, then press <Return>. Result You are returned to the beginning of the installation procedure. Note: All the data you have entered is lost and must be entered again.
7	Select Abort, then press <Return>. Result The installation is terminated. Note: Press the reset button on the mail card with the Install/data tape in the tape drive, and try the installation again (see "Beginning the software installation" on page 209), or call your Nortel representative.

Defining Mail in the customer data block - overlay 15

Once the voicemail software is installed (see [“Beginning the software installation” on page 209](#)), the voice mail service must be defined in the customer data block using Overlay 15. Use the following procedure to define the customer data block.

Procedure 44

Defining Mail in the customer data block

- 1 Load Overlay 15 at the switch administration terminal.
- 2 Respond to the prompts as shown in Table 32.
- 3 Press <Return> after each prompt until you get to the next one you need.
- 4 When the configuration is complete, enter ********, or type **END** followed by <Return> in response to the prompt REQ.

The two sets of prompts in Overlay 15 affect the routing of unanswered or busy calls:

- Flexible Call Forward (FNAD/FNAN/FNAL) is set on a per customer basis. The call forward DN is defined in the user's telephone data.
- Call Forward No Answer/Busy (MDID/NDID/MWFB) is set on a per customer basis. All no answer/busy calls are routed to the flexible call forward DN (provided the called set has message waiting allowed [MWA] class of service).

Normally, non-Direct Inward Dialling (DID) calls are routed to Mail when a no answer or a busy condition is encountered. As an option, DID calls can be routed to attendant's or user's Hunt DN.

Table 32
Overlay 15 - Customer data block

Prompts	Responses	Description
REQ	NEW or CHG	Message center is included for the customer. Integrated Voice Messaging feature Enable Integrated Voice Messaging attendant for the customer Call forward no - answer DID calls are routed to the flexible CFNA DN.
TYPE	CDB	
CUST		
FTR_DATA	YES	
OPT	MCI	
IMS_DATA	YES	
IMS	YES	
IMA	YES	
RDR_DATA		
FNAD	FDN	
continued		

Prompts	Responses	Description
FNAN (or FNAT)	FDN	Call forward no - answer non-DID calls are routed to the flexible CFNA DN.
FNAL	FDN	Call forward no - answer local calls(with CFCT enabled) are routed to the flexible CFNA DN
CFTA	YES	The CFNA prompt appears only if you respond YES to this prompt.
CFNA		Number of ring cycles before the call is forwarded (the default is 4).
MDID	NO/YES	NO (recommended) - No-answer DID calls are routed to wherever the user wants (including Mail). YES - No-answer DID calls are routed to Mail.
NDID	NO/YES	NO (recommended) - No-answer DID calls are routed to wherever the user wants (including Mail). YES - No-answer DID calls are routed to Mail.
MWFB	NO/YES	NO (recommended) - No-answer DID calls are routed to wherever the user wants (including Mail). YES - No-answer DID calls are routed to Mail.
	****	Exits the overlay.
The flexible call forward DN is the Mail DN. It is entered in the telephone set data block for each Mail user. The other options for FNAD, FNAL, and FNAN are: att - route to attendant hnt - route to hunt DN no - do not route unanswered calls end		

Continuing the configuration

To provide minimum voice mail administration to your Meridian Mail Compact Option system, once the customer data block has been defined (see Procedure 44), you have to perform the following:

- On the switch, define the primary and secondary ACD queues using Overlay 23 and Overlay 11 (see Chapter 22 in the *Meridian Mail Compact Option System Administration Guide* - NTP 555-7001-333)
- On the mail side, add VSDNs to the VSDN table for voice messaging (VM) and express messaging (EM) (see Chapter 23 - Section B in the *Meridian Mail Compact Option System Administration Guide* - NTP 555-7001-333)
- on the mail side, to modify the Channel Allocation Table (see Chapter 27 - Section D in the *Meridian Mail Compact Option System Administration Guide* - NTP 555-7001-333)

Meridian Mail Compact Option upgrade

This section explains how to perform a comprehensive upgrade on your Meridian Mail Compact Option system. This operation is performed when an Meridian Mail Compact Option system requires upgrading because of a new internal upgrade of the software release (for instance, from xx.05 to xx.06), features, hardware, or storage during a new equipment installation.

What to do before you begin

Checklist

Review the following points before installation of the software:

- Determine the port capacity of your Meridian Mail Compact Option system.
- Make sure that there is paper in the printer. (If your printer runs out of paper during the procedure, your screen will freeze.)
- Enable your terminal's autoprnt mode (<Control><W> followed by <P>) in order to capture everything that appears on your screen. If you have to reboot the system for any reason, you will have to reenable the auto-print mode.
- Have your Meridian Mail Compact Option Install/data tape available.
- Have the keycode available. For information on keycodes, see [page 204](#).
- Verify that all the appropriate hardware is installed, particularly the hardware associated with the features defined in your keycode. If additional hardware needs to be added, obtain the hardware. Refer to this guide for more details on hardware and hardware installation.

Performing a comprehensive upgrade

The procedures that follow provide information about performing a comprehensive upgrade on the Meridian Mail Compact Option system. It is intended to be as general as possible so that customers with varying platforms can use it.

The procedure has several parts. The first part is common to all platforms and must be performed for all comprehensive upgrades.

Following the common procedure are procedures broken into tasks that, in general, all platforms use. Where there are deviations because of platform specifics, these are remarked on within the procedure or broken out and given their own procedure.

The intent of the procedures is to provide a general look at the comprehensive upgrade on each platform and, therefore, may not cover your specific configuration.

When to use the procedures

Use the setup procedure when

- you are planning to do a comprehensive upgrade

Use the main upgrade procedures when

- you are comprehensively upgrading your specific platform

Note: If you are planning to do a simple upgrade, see “Setting up for a comprehensive upgrade” on page 236, and perform steps 1 through 11.

Setting up for a comprehensive upgrade

When beginning a comprehensive upgrade, follow these steps.

Starting Point: Meridian Mail System Status and Maintenance Menu.

Step	Action
1	Select the “System Status” screen and perform a courtesy-down procedure before starting on any of the following steps. Note: Do this prior to starting any of the procedures described in this guide to prevent calls from being abruptly terminated when the operation begins. For more information, refer to the section “Disabling/Activating the system” in the chapter “System Status and Maintenance” in the <i>System Administration Guide</i>.
2	Insert the Meridian Mail Compact Option Install/data tape into the tape drive. Note: Refer to Procedure 40 in this guide for tape insertion instructions.
3	Press the reset button on the Meridian Mail Compact Option card. Result Diagnostic routines are shown followed by a pause of approximately five minutes while the tape is automatically retensioned.
4	When retensioning begins, the following message is displayed. Tape retension Note: Tape retension takes about 5 minutes, and it takes between 5 and 10 minutes to load the software. Result Once loaded, the System Installation and Modification Menu is displayed.

Step	Action
------	--------

```
System Installation & Modification Menu
-----

1  Install an MM11 system
2  Comprehensive Upgrade
3  More Utilities

Please enter the operation number:
```

- 5 To choose comprehensive upgrade, press the up or down arrow keys until a 2 appears beside the following prompt:

Please enter the operation number:

or type 2, then press <Return>. The following message appears:

You have chosen to run comprehensive upgrade (SW/HW) .

Do you wish to continue? No (Yes)

Note: To reenable auto-print mode, use the <Control><W> and then <P>. See "Checklist" on page 235 for more information on using this command.

- 6 Do you wish to continue?

If No, go to step 7.

If Yes, go to step 8.

- 7 Press the up or down arrow key to select No, then press <Return>.

Result You are returned to the main menu.

- 8 Press the up or down arrow key to select Yes, then press <Return>.

Result Various system messages appear on screen.

Step	Action
------	--------

- 9 The following text is displayed.

```
Do you wish to continue ? Yes

Program Resource Manager [Arg=""] Node 1 Ver. 1.5 (MM11)
PRM: Resetting all possible nodes
PRM: Waiting for Seer Server to register
PRM InitSystem: MaxProgs calculated to be 100
PRM Audit: Audit task is up
PRM : OS Version - HP060595 for Fox:Tue Sep 9 17:01:04 1997:FTAPE-REL:11.19.4:
Ensuring that all volume servers are running
Starting SCSI utility on all nodes

Your MM11.19.4 system will be comprehensively upgraded to the MM11.19.4 release.

Comprehensive Upgrade provides you with the means to simultaneously upgrade
the software on a system while also adding new hardware, storage hours,
features, or converting the system from a previous release.

If you only want to upgrade the software to MM11.19.4 select Software Upgrade.
This operation does not require a keycode or any user input.

Otherwise select Comprehensive to perform any other combination of operations.

Select operation : Comprehensive
```

IF the Select Operation prompt is	THEN go to
-----------------------------------	------------

Comprehensive	step 10
Upgrade	step 11

Note: Use the up or down arrow keys to toggle between Comprehensive and Upgrade.

- 10 Select “Comprehensive,” then press <Return>.

Result Various system operation messages scroll on the screen.

Go to “Keycode procedure” on page 240

- 11 Select “Upgrade,” then press <Return>.

Result Various system messages are displayed and the system is upgraded to the latest Meridian Mail Compact Option release with no further user intervention.

Keycode procedure

To enter the keycode, follow these steps. This procedure also indicates your system configuration and features.

Step	Action
1	Start entering the 20-character keycode, four letters at a time, as prompted, pressing <Return> after each four-character entry. Example: The following shows character block prompts: Enter 4 character Block 1:D2G8 Enter 4 character Block 2:ESYM and so on. The following cases are considered:

IF you enter	THEN the system responds with
the wrong number of characters	Please enter 4 characters Enter 4 Character Block 1:
invalid characters	That Block contains invalid Characters - Please Enter Again
the wrong keycode	That Keycode was invalid. Would you like to try again? Yes (No)

- 2 Once the keycode is entered, the system displays the first keycode screen listing your system configuration.
- Result** The following screen is displayed.

Step**Action**

System Configuration		
	Old System	New System
Software Release :	11.19.4	11.19.4
Serial Number :	10000027	10000027
Platform :	Compact Option	Compact Option
Nodes :	1	1
Storage Hours :	10	24
Max Languages :	1	2
CHANNELS:		
Max Full Service :	4	6
Min Multimedia :	0	0
Max Voice :	8	8
Total Physical :	8	8
Basic Service :	4	2
NMS Locations :	0	0

Enter the Keycode for the serial number 10000027 :
Enter 4 Character Block 1 : P88W
Enter 4 Character Block 2 : UXQE
Enter 4 Character Block 3 : 7PX2
Enter 4 Character Block 4 : J9U6
Enter 4 Character Block 5 : S2H2
Is this correct ? Yes ☒

Note: The display above is intended only as an example of this screen. Your keycode screen may differ .

3 Is this correct?

If Yes, go to step 4.

If No, go to step 7.

4 Press the up or down arrow keys to select Yes and press <Return>.

Result A second keycode screen listing the system features is displayed.

Feature	Old	New	Feature	Old	New
SMDI :			Voiceforms :		
Meridian Access :			VMUIF :		
AdminPlus :			Multiple Admin :		
ANIS :			Meridian Connections :		
HVS :			Fax On Demand :		
Networking :	X	X	Multiple Customer :		
NMS :			Bilingual Prompting :		X
Outcalling :			Voice Menus :	X	X
Multi SMDI :					

Is this correct ? Yes ☒

Note: The display above is intended only as an example of this screen. Your keycode screen may differ in feature specifications.

Step	Action
5	Is this correct? If Yes, go to step 6. If No, go to step 7.
6	Press the up or down arrow keys to select Yes and press <Return>. Go to the next procedure.
7	If the system configuration is not correct, contact your Nortel representative to obtain another keycode.

Hardware configuration

Use the following procedure describes the hardware configuration.

Step	Action
1	When you confirm that your system features are correct, the system begins a rules check. Result The following screen is displayed.

```
Comprehensive Upgrade
-----
Checking node rules
Checking storage hours rules
Checking language rules
Checking feature rules
Press RETURN to continue:
.
.
.
```

Note: If the rules check fails, the procedure is aborted. Check your keycode. If the rules check continues to fail even after checking your keycode, contact your Nortel representative.

- 2 Press <Return>.

Result The following system messages are displayed.

```
Reading Hardware Database for Miscellaneous
Info
```

```
Reading Hardware Database for a Component Type
```

- 3 Go to “Selecting call progress tone detection” on page 244.
-

Selecting call progress tone detection

To select the Call Progress Tone Detection (CPTD) number for your country, follow these steps.

- | Step | Action |
|------|--|
| 1 | <p>You are provided with the current CPTD selection and the following prompt:</p> <p>Select operation: Done (Change)</p> |
| 2 | <p>Select operation:</p> <p>If you select Done, go to step 4.</p> <p>If you select Change, go to step 3.</p> |
| 3 | <p>Select Change, then press <Return>.</p> <p>Result The following CPTD screen is displayed.</p> |

```

The current CPTD Selection is : Generic - Ver. Fe94
-----
Select operation : Change
 1 : Generic - Ver. Fe94    2 : Australia             3 : Austria
 4 : Belgium              5 : Canada                6 : Denmark
 7 : Finland              8 : France                9 : Germany
10 : Hong Kong            11 : India                12 : Ireland
13 : Italy                14 : Japan               15 : Korea
16 : Malaysia            17 : Netherlands         18 : New Zealand
19 : Norway              20 : Portugal            21 : Russia
22 : Saudi Arabia        23 : Singapore           24 : Sweden
25 : Switzerland        26 : Taiwan              27 : Turkey
28 : United Kingdom      29 : United States       30 : China
Please enter the CPTD country index number : 1

```

Press the up or down arrow key until the desired country number is displayed on the screen (or press backspace and enter the number), then press <Return>.

- | | |
|---|--|
| 4 | Go to "Entering DSP parameters" on page 245. |
|---|--|
-

Entering DSP parameters

To review or change the DSP parameters on your system, follow these steps.

Step	Action
------	--------

- | | |
|---|--|
| 1 | From the previous procedure, press <Return>. |
|---|--|

The following DSP parameters screen is displayed.

DSP Encoding Type : MuLaw			
Disable Silence Compression : No			

Transmit Level	: 0	Disable AGC	: No
Receive Level	: 0	AGC Center	: -20
DTR Reject Level	: -36	Hook Flash Pulse	: 320
DTR Max Accept Level	: 1	TeleScan Debounce	: 128
		TeleScan Ring Time	: 1024

Select operation : Change			

You have four selections at the “Select operations” prompt which are revealed each time you press the up or down arrow keys. Select

- “Done” if you are satisfied with the default values or after you have completed all the parameter changes.
- “Change” if any of the parameters require changing. You will be stepped through each parameter.
- “Redraw” if your screen becomes overwritten with errant characters and you need to clear them from your DSP screen.
- “Reset” if you decide to go back to the default settings after you have changed them.

- 2 At the “Select operation: “ prompt,

if Done, go to step 5.

If Change, go to step 3.

Step	Action
------	--------

- 3 Select Change and press <Return>. The following prompts are displayed.

DSP Encoding Type: MuLaw (Alaw)

ATTENTION

If the above DSP encoding parameter is set incorrectly, severely degraded voice quality may result.

Note: Do not change DSP parameters unless you are instructed to do so by Nortel.

Example: The following screen is provided as an example of how your display may look.

```

DSP Encoding Type           : MuLaw
Disable Silence Compression : No

Transmit Level              : 0           Disable AGC              : No
Receive Level              : 0           AGC Center               : -20
DTR Reject Level           : -36         Hook Flash Pulse          : 320
DTR Max Accept Level       : 1           TeleScan Debounce         : 128
                                   TeleScan Ring Time        : 1024
-----
Select operation : Change
DSP Encoding Type           : MuLaw
Disable Silence Compression : No
Do you wish to change other DSP parameters ? Yes
Transmit Level              : 0
Receive Level              : 0
DTR Reject Level           : (-36)
DTR Max Accept Level       : (1)
Disable AGC                : No
AGC Center                 : -20
Hook Flash Pulse           : 320
TeleScan Debounce          : (128)
TeleScan Ring Time         : 1024
Select operation : Change
  
```

Note: For a list of DSP parameters, see Table 31.

Step	Action
------	--------

- | | |
|---|---|
| 4 | At the “Select operation:” prompt,
If Change or Reset, go to step 3.
If Done, go to step 5. |
| 5 | When you select Done, go to the next procedure. |

Defining voice port hardware locations

To define your voice channel entries for the Voice Port Hardware Location table, follow these steps.

Step	Action
------	--------

- | | |
|---|------------------------------------|
| 1 | Select Done on the DSP parameters. |
|---|------------------------------------|

Result The following voice port screen is displayed.

Note: The table below depends on your system configuration as defined by your keycode and the installed system hardware. Your display may differ.

```
Node ----- Voice Port Hardware Location -----
  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16
  1 Vf Vf Vf Vb Vb Vb Vb Vb
-----
Select operation : Change
```

- | Step | Action |
|------|---|
| | <p>You have four selections at the Select operations prompt which are revealed each time you press the up or down arrow keys. Select</p> <ul style="list-style-type: none">• “Detailed Display” if you need to see a detailed display of all the hardware locations on the node.• “Change” if you want to change the port definition on a range of hardware locations on the node and to modify default values to the switch agent configuration.• “Done” if you are satisfied with the default values or your changes.• “Reset” if you decide to go back to the default settings after you have changed them. |
| 2 | <p>Press the up or down arrow key until the desired choice is displayed on the screen, then press <Return>.</p> <p>Example: Select Change, then press <Return>.</p> <p>Note: In the display in step 3, Port Type required is Voice_Full. The other choice is Voice_Basic. All entries are changed by pressing the up or down arrow keys, and then pressing <Return> which moves you on to the next value.</p> |
| 3 | <p>When you select your ACDDN and press <Return>, the table will change to display your changes, as in the following example.</p> |

```
Node ----- Voice Port Hardware Location -----
  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16
  1 Vf Vf Vf Vf Vf Vf Vb Vb
-----
Select operation : Change
Port Type       : Voice_Full
First Node      : 1
First Location  : 4
Last Node       : 1
Last Location   : 6
ACDDN           : 7000
Select operation : DetailedDisplay
First Node      : 1
First Location  : 1
Last Node       : 1
Last Location   : 8
```

Result Notice that three more Voice_Full port has been added at ports 3, 4, and 5.

Step	Action
------	--------

- 4 Select DetailedDisplay, then press <Return>.

Note: You are asked to provide the node range (which is 1 for Meridian Mail Compact Option) and location ranges to view the hardware locations on the node.

Result The following example shows that node1 and locations 1 to 8 have been specified.

Num	VP	Locn	Type	ACD	SECDN	Loop	Shlf	Crđ	Unit	Density	Switch
1-	1	1-2-1-1	Vf	7000	7800			10	0	Octal	Meridian_1
1-	2	1-2-1-2	Vf	7000	7801			10	8	Octal	Meridian_1
1-	3	1-2-2-1	Vf	7000	7802			10	1	Octal	Meridian_1
1-	4	1-2-2-2	Vf	7000	7803			10	9	Octal	Meridian_1
1-	5	1-3-1-1	Vf	7000	7804			10	2	Octal	Meridian_1
1-	6	1-3-1-2	Vf	7000	7805			10	10	Octal	Meridian_1
1-	7	1-3-2-1	Vb	7000	7806			10	3	Octal	Meridian_1
1-	8	1-3-2-2	Vb	7000	7807			10	11	Octal	Meridian_1

Press RETURN to continue: █

Step	Action
------	--------

5 Press <Return>.

Result The Voice Port Hardware Location table (see below) is displayed again.

Node	-----	Voice Port	Hardware Location	-----												
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	1	Vf	Vf	Vf	Vf	Vf	Vf	Vb	Vb							

Select operation : Done																
Is this correct? Yes																

If you are satisfied with the changes, select Done. The following prompt is displayed:

Is this correct? No (Yes)

Note: At this point in the procedure, Reset and Change are still available as choices if you wish to do anything to the settings.

ATTENTION

If, after selecting Change again or Done, you receive an error, there may be an incorrect assignment of the voice ports to the link. The error must be corrected before you can proceed.

6 Is this correct?

If No, go to step 7.

If Yes, go to step 8.

7 Select No, then press <Return>

Result You are returned to the Select Operation mode at step 1.

8 Go to “Assigning the dataport locations” on page 251.

Assigning the dataport locations

To assign dataport locations to your system, follow these steps.

Step	Action
------	--------

- 1 From the previous procedure:
Select Yes, then press <Return>.

Result The following dataport configuration table is displayed.

Note: The table below depends on your system configuration as defined by your keycode and the installed system hardware. Your display may differ.

Node	Card	Type	Port 1	Port 2	Port 3	Port 4
1	1	ESBC	CONSOLE	CSL1	DIAGNOST	

Please assign the data port locations.

Select operation : Display█

You have two selections at the Select operation prompt. When making selections, press the up or down arrow keys until the desired response is displayed on the screen, then press <Return>. Select

- “Display” if you wish to see a detailed display of all the dataport locations on the node.
- “Done” to continue with the Comprehensive Upgrade.

- 2 Select operation:
If Display, go to step 3.
If Done, go to step 5.

Step	Action
------	--------

- 3 Select Display, the following screen appears:

Result The following detailed dataport configuration table with your default settings is displayed.

```
The following dataports are on this system :  
  
Node 1, Type  ESBC, Port 1: Dataport Name = CONSOLE  
Node 1, Type  ESBC, Port 2: Dataport Name = CSL1  
Node 1, Type  ESBC, Port 3: Dataport Name = DIAGNOSTIC  
  
Press RETURN to continue: █
```

- 4 Press <Return>.

Result You are returned to the dataport locations table.

- 5 Select Done, then press <Return>.

- 6 Go to “Adding languages” on page 253.
-

Adding languages

To select more languages in a comprehensive upgrade/conversion, follow these steps.

Step	Action
------	--------

- | | |
|---|---|
| 1 | From the previous procedure, select Done then press <Return>. |
|---|---|

Result The following screen is displayed (your display may differ).

Installed Languages	Selected Languages
American English	
You may include 1 more languages	

Select operation : AddLanguage	

- 2 Select operation:
- If AddLanguage, go to step 3.
- If Done go to step 8.

Step	Action
------	--------

- 3 Select AddLanguage, then press <Return>.

Result The following screen is displayed.

Installed Languages	Selected Languages
American English	
You may include 1 more languages	

Select operation : AddLanguage	
Languages Available from this tape are:	
1 - American English	
2 - Canadian French	
3 - Latin American Spanish	
4 - Brazilian Portuguese	
5 - German	
6 - Japanese	
7 - From Another Tape	
Enter the number of the language you require: 3	

- 4 Press the up or down arrow key until the desired number of the language you require is displayed on the screen (or press backspace and type a number), then press <Return>.

The following prompt is displayed:

You have chosen (language name) .

Note: At this point, if you choose either 0 or the number for the **From Another Tape** option without selecting a language, you are advised that you must choose at least one language from this menu and the selection prompt is repeated. If you choose **From Another Tape**, you will be prompted to insert the other tape (see "Continuing the software installation" on page 229) at the end of the comprehensive upgrade.

Is this correct? No (Yes)

- 5 Is this correct?
If No, go to step 6.
If Yes, go to step 7.
- 6 If you select No, the language prompt is repeated.

Step	Action
7	Note: If you select Yes and your keycode calls for more than one language, the prompt is repeated until the number of languages specified in the keycode has been selected. When you have finished your language selections, select Done and press <Return>.
8	Go to “Continuing the comprehensive upgrade” on page 256.

Continuing the comprehensive upgrade

To continue the comprehensive upgrade, to reenter information, or to abort, follow these steps.

Step	Action
1	Select Done, then press <Return>. Result The following prompt is displayed. All required information has been input. Do you wish to continue, re-enter information, or abort? Continue
2	Do you wish to continue, re-enter information, or abort? If Continue, go to steps 3 to 6. If Re-enter, go to step 7. If Abort, go to step 8.
3	Select Continue, then press <Return>. Note: If you selected From Another Tape for your languages, you are prompted to remove the current tape and insert the other tape. See “Adding languages” on page 253 for the procedure. Result The add languages screen does not appear because you did not require another tape; the system runs various routines. When these routines are completed, the following message is displayed. The operation successfully completed. Remove the tape when it finishes rewinding and boot into Service. Shutting down tape server
4	The system finally responds with #TAPE:MMTAPE1>

Step**Action**

- 5 Remove the Install/data tape and press the reset button on the mail card.

Result Various system routines are displayed and the Meridian Mail logon screen appears. Normal system administration operations may begin.

ATTENTION

Store the Install/data tape in a safe place. This will ensure that if you need to reinstall or modify the system, you will have quick access to the tape.

- 6 Log on using the system default password ADMINPWD (not case sensitive), then change the password immediately.

- 7 Select Re-enter, then press <Return>.

Result You are returned to the beginning of the comprehensive upgrade procedure.

Note: All the data you have entered is lost and must be entered again.

- 8 Select Abort, then press <Return>.

Result The comprehensive upgrade is terminated.

Note: Press the reset button on the Meridian Mail Compact Option card with the Install/data tape in the tape drive, and try the comprehensive upgrade again (see "Setting up for a comprehensive upgrade" on page 236), or call your Nortel representative.

Backing up the system

Before you perform any significant hardware or software procedures, you should back up the Meridian Mail Compact Option system from disk to tape so that, in the event that something goes wrong, the customer's data will not be lost.

If an external tape drive is already installed, there is no need to courtesy down. The Meridian Mail Compact Option system can remain active during a backup. Any changes to the system's data that occur during the backup are recorded at the very end of the backup process. However, since the backup procedure may slow down the system, we recommend you only perform backups when your system is not busy.

The tapes you receive from Nortel are 3M brand DC6250 tapes. Be sure to use this tape format for your backups.

If you encounter any problems with the following procedure, refer to "Tape drive problems" on [page 279](#).

Procedure 45 **Backing up the system**

- 1 If one is not already connected, connect an external tape drive to the Meridian Mail Compact Option voice mail card. (Refer to [Procedure 39 on page 195](#).)
- 2 Log on to the Meridian Mail Compact Option system at the system administrator's terminal.
- 3 From the Main Menu, choose "2 General Administration."→
"2 Volume Administration."
- 4 Choose the disk volume you wish to back up. (The Meridian Mail Compact Option has only one disk volume, but you still must select it by pressing the space bar.)
- 5 Press [Backup To Tape].
- 6 The Disk to Tape Backup screen appears.
- 7 Press [Immediate Backup].

- 8 At the prompt, insert an appropriate tape into the tape drive.
Note: You may refer to Procedure 40 for more information about how to insert a tape.
- 9 Press [OK To Start Backup].
The Backup Status screen appears. From here, you can follow the progress of the backup. You have the option of aborting the backup or exiting to the Volume Administration screen.
The backup should take about 30 to 60 minutes, and requires only a single tape of the appropriate size for your system.
- 10 When the backup is complete, remove the tape and label it clearly. Include the date and time of the backup.
- 11 Press [Exit] to return to the Volume Administration screen.
- 12 Remove the external tape drive if required.

End of Procedure

Scheduling backups

Permanently installing an external tape drive allows regular backups to be scheduled. In this way, should anything go wrong with the system, there will always be a recent backup on hand.

Procedure 46 **Scheduling system backups**

- 1 Log on to the Meridian Mail Compact Option system at the system administrator's terminal.
- 2 From the Main Menu, choose "2 General Administration."→
"2 Volume Administration and Selective Backup."
- 3 Choose the disk volume you wish to schedule for backup. (Meridian Mail Compact Option has only one disk volume, but you still must select it by pressing the space bar.)
- 4 Press [Backup To Tape].
- 5 The Disk to Tape Backup screen appears.
- 6 Complete a tape label and attach it to the tape cartridge.
- 7 Press [Schedule Backup].
- 8 The Schedule Backup screen appears.

- 9 Fill out the appropriate fields.
- 10 Press [Save Schedule].
You are returned to the Volume Administration screen. From here you can press [View Backup Schedule] to display the schedule you just entered. To edit the schedule, you must begin again at step 3.
- 11 Turn on the power to the external tape drive and ensure that it is never turned off.

End of Procedure

Once you have entered a schedule, backups proceed automatically. You may choose to leave the same tape in the drive at all times. New backup data will overwrite the old backup data.

Note: A backup tape will wear out over time. Please ensure that you replace it regularly with a new tape, according to the manufacturer's recommendations.

Scheduled backups are useful in the event of emergencies, but you should still perform an immediate full-system backup before proceeding with any significant hardware or software procedures to ensure that no data is lost.

Restoring the system

Should the system fail, a recent backup tape allows you to restore the system to the point at which the backup was made.

Procedure 47

Restoring the system

- 1 Refer to the "Restore from backup" chapter in the *System Installation and Modification Guide* (NTP 555-7001-215) to run the System Installation and Modification from the Meridian Mail Compact Option Install/data tape.

Note: Always use the same software release that was used to create the backup.
- 2 From the System Installation and Modification Menu, choose "3 More Utilities" → "3 Restore System from Backup."

- 3 At the prompt, insert the most recent full-system backup tape you have into the tape drive and press <Return>.

Note: The restore process takes approximately 40 to 80 minutes to complete.
- 4 When the prompt:

The operation successfully completed.
Please remove the tape and boot into service.

appears, do the following:
 - a. Refer to [page 199](#) to remove the tape from the drive.
 - b. At the switch, disable AML 9 in LD 48 and press <Return>.
 - c. Hold down the reset button located on the faceplate of the voice mail card.
- 5 At the switch, enable AML 9 ACMS and press <Return>.
- 6 Disconnect the external tape drive cable from the connector if required. (Refer to [page 200](#).)
- 7 Release the reset button to start Meridian Mail Compact Option.

End of Procedure

The Tools Menu

The Meridian Mail Compact Option Tools Menu contains several useful functions which are not used as frequently as those contained in the system administrator's Main Menu. To access the Tools Menu, follow these steps.

Procedure 48 Accessing the TOOLS menu

- 1 From the Meridian Mail Compact Option logon screen, press [Logon].
- 2 At the password prompt, enter **TOOLS** <Return>.
- 3 At the password prompt, enter the system administrator's password and press <Return>.

You are presented with the Tools Menu.

CAUTION

Risk of service interruptions

Do not attempt to use any TOOLS function until you have reviewed it in the *System Administration Tools Guide* (NTP 555-7001-305) .

The following Tools options apply to Meridian Mail Compact Option.

Figure 45
TOOLS level access menu

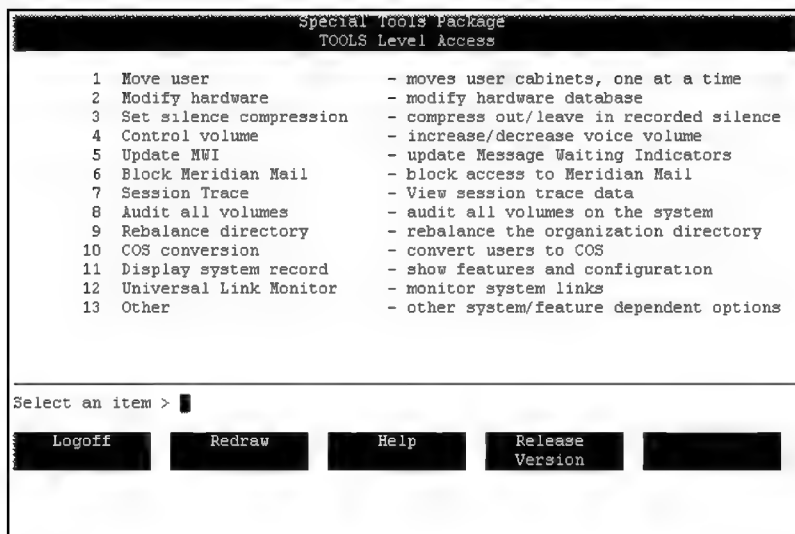
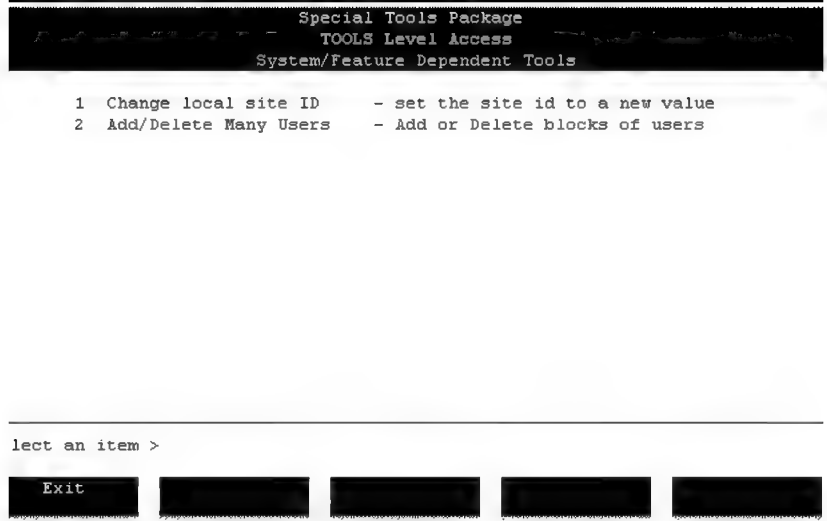


Figure 46
System/feature dependent tools menu



For full descriptions of every function, refer to *System Administration Tools*. (NTP 555-7001-305).

Troubleshooting and maintenance

This section describes the procedures you can follow should anything go wrong with Meridian Mail Compact Option, and the procedures you should follow to make these problems less likely.

The troubleshooting procedures assume that you are completely familiar with the Meridian Mail Compact Option hardware and software installation procedures.

Troubleshooting

For any problems with Meridian Mail Compact Option you should first consult *Maintenance Messages (SEERs) Reference Manual* (NTP 555-7001-510). This book contains a comprehensive list of the events and errors recorded on the SEER printer.

Troubleshooting Meridian Mail Compact Option hardware is a simple process of determining the component that is causing the problem and replacing it. The components cannot be repaired in the field; return them to your Northern Telecom (Nortel) distributor for repair.

Problems with the switch often cause problems with Meridian Mail Compact Option.

Unless otherwise stated, an instruction that tells you to replace a component implies that you should then reinstall and restart Meridian Mail Compact Option to see if the problem has cleared. If replacing the component does not clear the problem, you should reinstall the old component and proceed to the next step in the troubleshooting procedure.

Precautions

You must not remove or handle any of the Meridian Mail Compact Option hardware while Meridian Mail Compact Option is on and running. If the Meridian Mail Compact Option is running, follow the procedure for stopping Meridian Mail Compact Option on [page 193](#).

Failing to do so can result in damage to the components or injury to yourself.

CAUTION**Risk of data error**

Before removing or handling any Meridian Mail Compact Option hardware, ensure that you courtesy down the system. Refer to [Procedure 37 on page 193](#).

CAUTION**Risk of equipment damage**

Use extreme care and wear a grounding strap when handling the PCBs. They are susceptible to electrostatic damage and to damage from rough or improper handling.

Replacing components

Refer to the appropriate sections in this guide.

Problems during startup

The 68K card (mail CPU) has two LEDs. The left LED which is green is the card status LED. The right LED which is yellow is the HDD status LED. The following text and procedures are concerned with the card status green LED.

When the system is first turned on, the LED lights briefly and Compact Option proceeds with its internal diagnostics and start-up procedures. The LED should remain unlit during the entire process which takes approximately four minutes.

When start-up is complete, the green LED lights and stays lit. A flashing LED indicates a problem with the start-up procedure.

Refer to Table 33 to determine the appropriate procedure to follow based on the LED indicator.

Table 33
LED problem indicators

LED Indicator	Refer to
does not light at start-up	Procedure 49
lights at start-up but does not go out	Procedure 50
flashes rapidly or does not come back on after four minutes,	Procedure 51
flashes slowly	Procedure 52

Procedure 49
LED does not light at start-up

- 1 Ensure that the main Option 11C Compact power supply is on.
- 2 Check the card connections, as follows:
 - a) Ensure that the mail CPU (68K) card is firmly pushed into the connector at the back of the Option 11C Compact cabinet.
 - b) Ensure that none of the pins on the backplane connector of the Mail card is bent.
 - c) Ensure that the daughterboard (DVP4) connectors are properly seated, or the connector pins are not bent.
- 3 If the LED still does not light, follow these steps:
 - a) Remove the mail card (68K with daughterboard).
 - b) Reinstall all the cards, including the 68K card. Push it all the way to the back of the cabinet and lock the latch levers.
 - c) If the LED still will not light, remove the 68K card with the daughterboard attached, disconnect the daughterboard, and reinsert the 68K card only.

End of Procedure

Procedure 50**LED lights at start-up but does not go out**

- 1 Ensure that you have not installed an older 68Kcard (NTMW02AA) and an older DVP4 (daughterboard) card (NTMW03AA) in slot 10.
- 2 Remove the DVP4 cards and reinstall Meridian Mail Compact Option without them. If the LED goes out, one of the DVP4 cards is defective.
 - a) Replace each DVP4 card individually to determine which is defective.
 - b) Replace the defective card. Retain any DVP4 card and attach them to the 68K card.
- 3 Replace the 68K card.

End of Procedure

Procedure 51**LED flashes rapidly or does not come back on after four minutes**

The LED flashes rapidly (approximately one second on and one second off) or does not come back on after four minutes when either the 68K card or the SCSI diagnostics have failed.

- 1 Test the 68K card, as follows:
 - a) Disconnect the SCSI cable to the disk drive and the SCSI cable to the tape drive, if one is connected. Remove the DVP4 cards and reinstall the 68K card without them.

The LED should flash slowly.
 - b) If the LED still flashes rapidly, replace the 68K card.
- 2 Test the DVP4 card as follows:
 - a) Reconnect the SCSI cables that were disconnected in step 1 but do not reinstall the DVP4 cards.
 - b) If the Meridian Mail Compact Option now starts correctly, one of the DVP4 cards is defective. Reinstall each card, one at a time, until the problem reappears. Replace the defective card.

End of Procedure

Procedure 52
LED flashes slowly

The LED flashes slowly (approximately five seconds on and five seconds off) when the software fails to load.

- 1 If a tape drive is connected, ensure that it is turned on and that its SCSI address is set to 1.
- 2 Turn the tape drive off and then on again.
- 3 Check that the power and SCSI connections to the disk drive on the 68K card are properly secured and correctly oriented.
- 4 Reload the Meridian Mail Compact Option software from tape (see [“Performing a comprehensive upgrade” on page 235](#)).
- 5 Replace the 68K card.
- 6 Replace the hard disk on the 68K card (see Procedure 56) and restore the system from the most recent backup tape (see Procedure 47).

End of Procedure

Problems during comprehensive upgrade

Problems can occur while reading from the software tape and writing to the disk during comprehensive upgrade (storage expansion, software expansion, or software upgrade). They may be the result of a defective tape, a defective disk, or a problem with the SCSI link between the tape drive and the disk drive.

Procedure 53
Restoring and retrying system expansion or comprehensive upgrade

- 1 Restore the system to its original state, as follows:
 - a) If you added a new mail card or any other new cards, remove them.
 - b) If you installed a new disk drive, replace it with the old disk drive.
 - c) Ensure that all cable connections are secure, that the connector board is seated, and that the cards are firmly in place in the cabinet.
 - d) Restore the system from the backup tape (refer to [page 260](#)) and attempt to start Meridian Mail Compact Option. (Refer to [“Resetting mail” on page 194](#).)

- 2 If Meridian Mail Compact Option starts, attempt the comprehensive upgrade procedure again. If it fails a second time, restore the system and attempt the procedure again but with a different software tape.
or
If Meridian Mail Compact Option does not start correctly, follow the trouble-shooting procedures beginning on [page 264](#).
- 3 Replace the disk drive on the mail card, restore the system, and attempt the expansion or upgrade procedure again.

End of Procedure

Meridian Mail Compact Option card and hard drive replacement

The following procedures describe mail card and hard drive replacement.

Procedure 54**Replacing the CPU card assembly**

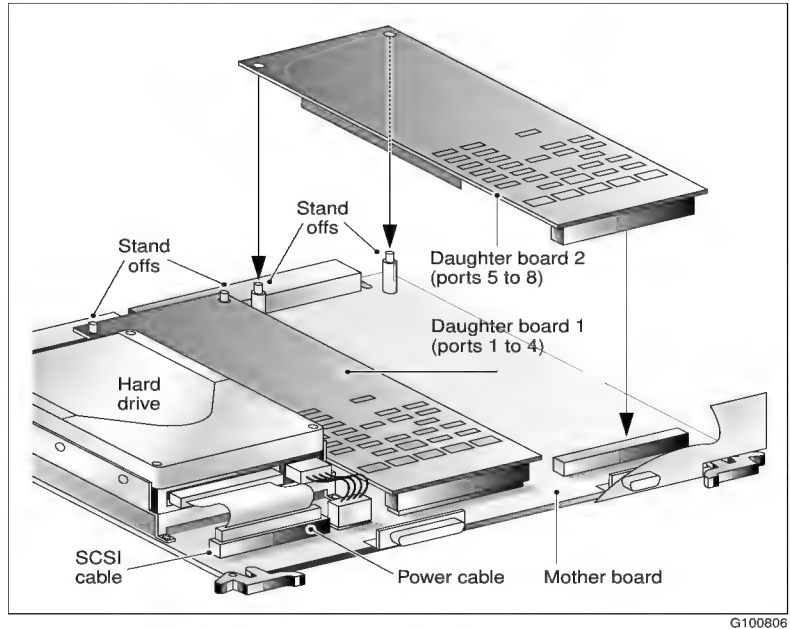
Note: Before proceeding, follow [Procedure 37 on page 193](#).

CAUTION**Risk of equipment damage**

Wear an ESD wristband connected to an appropriate ground. The voicemail card assembly contains components that can be damaged by electro-static discharge.

- 1** If necessary, remove any cables attached to the front of the voice mail card.
- 2** Push down on the card latches to disconnect the card from the connector at the back of the cardcage.
- 3** Pull the card out of its slot in the switch cardcage and lay the card on a flat surface.

Figure 47
Mail CPU card assembly



- 4 If you are replacing the mail CPU card, remove the daughterboards (see [Procedure 55 on page 272](#)) and the hard drive (see [Procedure 56 on page 272](#)), and add them to the replacement mail CPU card.
- 5 When all work on the mail CPU card has been completed, slide the mail CPU card assembly back in its slot and firmly seat it into the rear connector.
- 6 Reattach any cables and follow [Procedure 38 on page 194](#) to reset the voicemail.

Note: If you are replacing the complete mail CPU card assembly which includes a new hard drive and daughterboards, once you insert the new card assembly into the cardcage, you will have to perform a restore from backup to put the latest backup information from your system backup tape onto the new hard drive. To accomplish this, refer to [Procedure 47 on page 260](#).

End of Procedure

Procedure 55
Replacing a daughterboard

Note: Before proceeding, follow [Procedure 54 on page 270](#) up to step 2.

- 1 Pull up the end of the daughterboard to detach it from the stand-offs (see Figure 47), then detach the board from its connector.
- 2 Fit the replacement board over the stand-offs and the connector and press down firmly.
- 3 Return the mail CPU card assembly to its slot in the switch.
- 4 Refer to [Procedure 38 on page 194](#) to reset the voicemail.

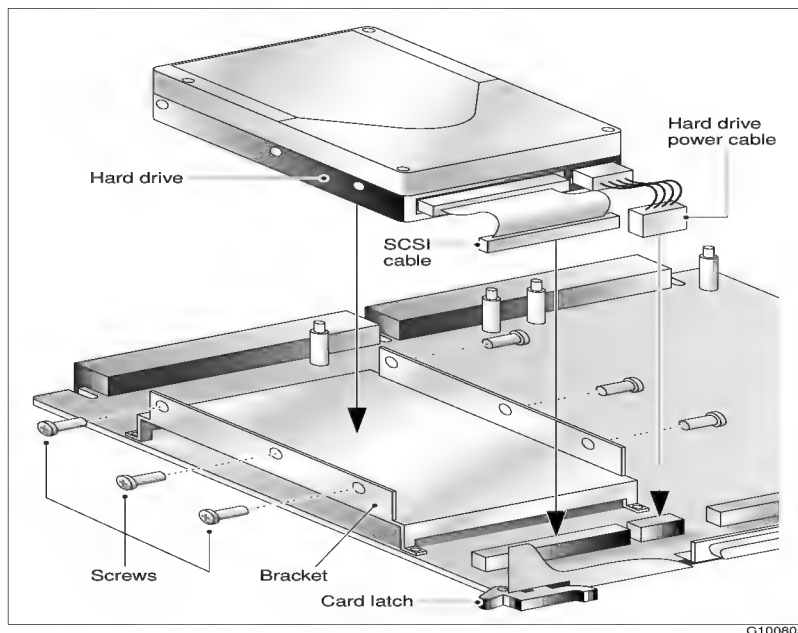
————— *End of Procedure* —————

Procedure 56
Replacing a hard drive

Note: Before proceeding, follow [Procedure 54 on page 270](#) up to step 2.

- 1 Remove the daughterboard closest to the hard drive. This allows easier access to the screws attaching the hard drive to the bracket.
- 2 Remove the four to six screws (see Figure 48) that attach the hard drive to the bracket.

Figure 48
The mail CPU card and the hard drive

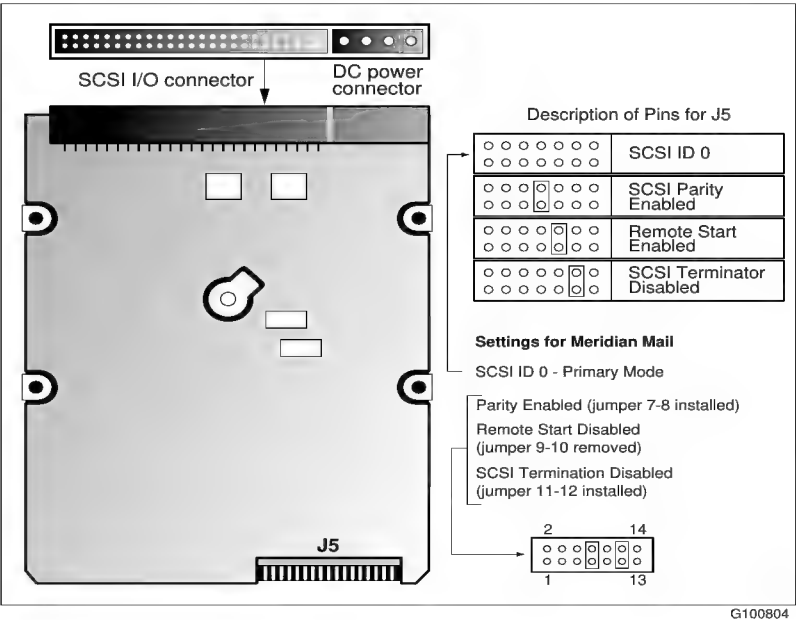


- 3 Remove the power cable and SCSI cable from the connectors on the CPU (see Figure 48) and lift out the hard drive.
- 4 Make sure you have the correct hard drive replacement and then set the jumper settings to those in Figure 49.
- 5 Place the hard drive in the bracket in the same orientation as the previous hard drive.
- 6 Secure the hard drive to the bracket with the screws.
- 7 Connect the SCSI cable and the power cable to their respective connectors.
- 8 Replace the mail CPUcard assembly in the switch.
- 9 Refer to [Procedure 38 on page 194](#) to reset the voicemail.

- 10
- To restore your latest system, you need to attach the external tape drive cable to the connection on the voicemail card faceplate.
- 11
- Insert the mail install/data tape into the tape drive and press the reset button located on the voicecard faceplate.
- 12
- Wait for the system installation and modification main menu to appear on the terminal, then follow [Procedure 47 on page 260](#).

— End of Procedure —

Figure 49
Jumper settings for the ST52160N hard drive



Tape drive problems**Procedure 57****Tape is not recognized by the system**

If the tape does not seem to be recognized by Meridian Mail Compact Option, try some or all of the following measures:

- 1 If you are performing a restore, ensure that you have inserted the correct tape.
- 2 Ensure that you have inserted the tape correctly. (Refer to [page 198.](#))
- 3 Ensure that the tape is of the correct format. (Refer to Procedure 40.)
- 4 Ensure that the tape is not write-protected.
- 5 Turn the tape drive off and then on again.
- 6 Clean the tape drive. (Refer to [page 280.](#))
- 7 Ensure that the tape drive has been correctly installed. (Refer to [page 198.](#))

End of Procedure

Procedure 58**Tape drive failure**

- 1 If the tape fails or you receive a read-write error, turn the tape drive off and then on again.

End of Procedure

Procedure 59**Starting a backup before inserting a tape**

If, while attempting to manually back up the system, you inadvertently press OK *before* inserting a tape

- 1 Insert a tape into the tape drive.
An error message is displayed indicating that the backup has failed.
- 2 Press [Exit].
- 3 Retry the backup procedure.

End of Procedure

Procedure 60
Defective tape during backup

If, while attempting to manually back up the system, you insert a defective tape

- 1 Retry the backup procedure with a different tape. If the backup is successful, discard the defective tape.
- 2 Clean the tape drive (refer to [page 280](#)) and attempt the backup again.
- 3 Restart the system and retry the backup procedure.

————— *End of Procedure* —————

Procedure 61
Defective tape during restore

If, while attempting to restore the system, you are informed that the tape is defective

- 1 Clean the tape drive (refer to [page 280](#)) and attempt the restore again.
- 2 If the second attempt is not successful, the tape is unusable. Do one of the following:

— Restore from an earlier backup tape, if one is available.

Note: Use the most recent backup you can find. Any changes that you've made to the system since that backup will have to be recreated.

— Install a new system and redefine your users.

Note: This should be your last resort; and should never have to be done if you make sure to make frequent backups.

Once you have successfully restored the system

- a) Perform a new system backup with a different tape.
- b) Discard the tape that caused the error.

————— *End of Procedure* —————

Terminal problems

Under most circumstances, the Meridian Mail Compact Option system should start up automatically and display the Meridian Mail Compact Option logon screen on the system administrator's terminal. You may notice problems at start-up or the terminal may become disabled during normal operation.

First, try to clear the problem as you would with the system administrator's terminal, then follow the steps for auxiliary terminals.

Procedure 62

The terminal does not display Meridian Mail Compact Option screens

- 1 The system administrator may have inadvertently switched to the Option 11C Compact Switch software. If you see the > prompt, enter **AX** <Return>.
- 2 Press <Control>] to switch to Option 11C Compact Switch software and, at the > prompt, enter **AX** <Return>.
- 3 Reset the console port (port 8) by disabling it and reenabling it, as follows:
 - a) Follow the procedures described in ["Enabling and disabling the console and AML data ports" on page 192](#). Reset the console port only; do not reset the AML (port 9).
 - b) Enter **AX** <Return> to return to Meridian Mail Compact Option.

End of Procedure

The terminal displays the Meridian Mail Compact Option screens incorrectly

Occasionally, the connection between Meridian Mail Compact Option and the system administrator's terminal may generate extraneous characters that cause the terminal to display the Meridian Mail Compact Option screens incorrectly.

Procedure 63

The terminal displays the Meridian Mail Compact Option screens incorrectly

To redraw the screen press <Control> **R**.

If the screen is incorrectly displaying the lines on the Meridian Mail Compact Option screens as a string of “q”s, follow these steps

- 1 Press <Control> **W**.
You are presented with a small pop-up menu.
- 2 Enter IF <Return>.
The screen redraws correctly.

Procedure 64
The keyboard does not respond

- 1 If there is a printer attached to your system, ensure that the printer is ready and online. (Refer to [page 201](#))
- 2 Press <Control> **J** to switch to Option 11C Compact Switch software. At the
> prompt, enter **AX** <Return>.
- 3 Reset the console port (port 8) by disabling it and reenabling it, as follows:
 - a) Follow the procedures described in [“Enabling and disabling the console and AML data ports” on page 192](#). Reset the console port only; do not reset the AML (port 9).
 - b) Enter **AX** <Return> to return to Meridian Mail Compact Option.
- 4 Turn the terminal off and on again.
- 5 Check the connection between the keyboard and the terminal.
- 6 Ensure that the terminal settings are correct.

————— *End of Procedure* —————

System event and error reports (SEERs)

System event and error reports contain information about every system event and error that occurs on the Meridian Mail Compact Option system. To configure Meridian Mail Compact Option to print SEERs as they occur, refer to the *Meridian Mail Compact Option System Administration Guide* (NTP 555-7001-333).

Follow Procedure 65 to view the SEERs for a given period

Procedure 65**View SEERs for a given period**

- 1** From the Main Menu on the system administrator's terminal, choose "5 System Status and Maintenance" → "5 System Event and Error Reports".
- 2** On the System Event and Error Reports form, enter the appropriate dates and times in *Report Period Start* and *Report Period End*.
- 3** Press the [View Reports] softkey.

The reports provide you with a brief description of the system event or error and when it occurred. For a more detailed description consult *Maintenance Messages (SEERs) Reference Manual* (NTP 555-7001-510).

End of Procedure

Maintaining the external tape drive

To ensure reliable tape drive performance, you should establish a regular cleaning schedule and observe the following precautions:

- Avoid mounting the tape drive where it is subjected to continuous shocks or vibrations.
- Maintain a clean, dust-free environment within the temperature and humidity limits listed in the specifications of the Option 11C Compact Switch system.
- Keep all liquids away from the drive and tapes to prevent spills into the equipment.
- Exercise reasonable care when using and storing tape cartridges. Do not place cartridges on the Option 11C Compact Switch cabinet or the monitor of the system administrator's terminal.
- When a stored tape is moved to an environment with a greatly different temperature, allow the tape to slowly reach room temperature before using it.
- Do not open the cartridge access door or touch the tape.
- Keep the tape drive turned on when it is connected to Meridian Mail Compact Option.

Cleaning the tape drive

To clean the tape drive, you need the following supplies:

- Low pressure aerosol air.
- Tape head cleaning fluid or reagent grade chemically-pure isopropyl alcohol.
- Tape head cleaning pads, lint-free cotton swabs, or any industry-acceptable head-cleaning swabs, six inches or longer.

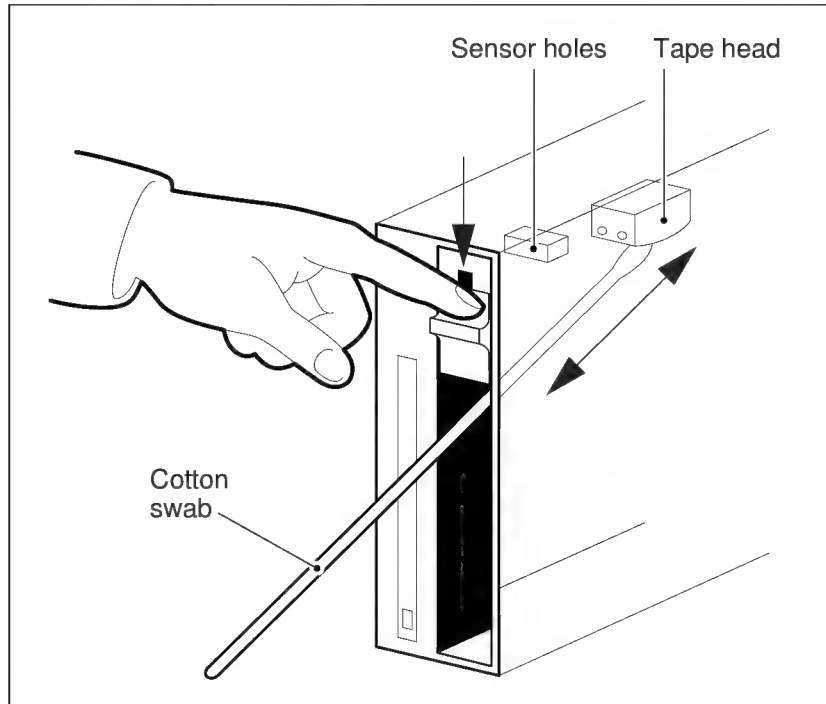
You should clean the head assembly after an initial pass with a new tape cartridge and after eight hours of normal use. You should clean the sensor hole and tape cartridge cavity whenever dust is visible.

Procedure 66

Cleaning the tape drive with swabs and fluid

- 1** If there is a tape cartridge in the tape drive, remove it.
- 2** If the power to the tape drive is on, turn it off.
- 3** Push the head loading lever to the load position.
- 4** Carefully blow out dust from the sensor hole and tape cartridge cavity with aerosol air.
- 5** Moisten a pad or swab with the head-cleaning fluid until it is saturated but not dripping.
- 6** Carefully wipe the head in the direction that the tape travels. (Refer to [Table 34, "Tape drive cleaning kits," on page 282.](#)) Do not wipe perpendicularly or use a circular scrubbing motion.

Figure 50
Cleaning the tape head



- 7 Discard the used swab and repeat steps 5 and 6 with new swabs until the swab shows no signs of dirt.
- 8 Use a new, dry swab to remove any remaining cleaning fluid from the head.
- 9 Push the head loading lever away from the load position.
- 10 If there was a tape cartridge in the tape drive, replace it.
- 11 If the power to the tape drive was on at the start of this procedure, turn it back on.

End of Procedure

Procedure 67
Using a tape drive cleaning kit

- 1 If there is a tape cartridge in the tape drive, remove it.
- 2 Push the head loading lever down into the load position (for an Archive tape drive) or press the release button to open the tape drive (on the Tandberg tape drive).
- 3 Carefully blow out dust from the sensor hole and tape cartridge cavity with aerosol air.
- 4 Depending on your tape drive, release the head loading lever or press the release button to open the tape drive.
- 5 Obtain the appropriate tape drive kit for your tape drive. Refer to Table 34 for the correct CPC code.

Table 34
Tape drive cleaning kits

Type of tape drive	Cleaning kit CPC code
Archive Viper	A9378220
Tandberg TDC 4220	A0622896

- 6 Moisten the flexible pad of the cleaning cartridge with four drops of the Streaming Tape Head Cleaning Fluid.
- 7 Insert the cleaning cartridge into the tape drive in the same way as a normal tape cartridge and lock into position.
- 8 Move the moistened pad using four strokes of the guide rod, moving the rod as far as it will go each time.
- 9 Remove the cleaning cartridge from the tape drive.
- 10 Remove the flexible pad by sliding it out of the holder, then discard the pad.

- 11** Insert a new, dry pad into the holder by sliding it into place.
- 12** Insert the cleaning cartridge into the tape drive and lock into place.
- 13** Move the dry pad using four strokes of the guide rod, moving the rod as far as it will go each time.
- 14** Remove the cleaning cartridge. Store it with the dry pad in its original carton until next use.

End of Procedure

References

The following Meridian Mail 11 manuals may be referenced for the Meridian Mail Compact Option system:

- *System Administration Tools Guide* (NTP 555-7001-305)
- *Maintenance Messages (SEERs) Reference Manual* (NTP 555-7001-510)
- *System Installation and Modification Guide* (NTP 555-7001-215)

Chapter 21—Upgrading Software

An overview

Introduction

This chapter describes how to use the Software Installation Program to perform a software upgrade on the Meridian 1 Option 11C Compact system.

For more information on the Software Installation Program, refer to “Chapter 16 – Starting up and testing the system” on page 129.

Software upgrade to a new release or issue

Introduction

This chapter contains two procedures.

The first one on [page 286](#) describes how to upgrade the software on an existing Meridian 1 Option 11C Compact to a new release or issue using the Software Delivery (PCMCIA) card.

The second one on [page 296](#) describes how to revert to the previous software version.

CAUTION

A new Keycode Data Sheet and Software Delivery (PCMCIA) card programmed with the new software release are required to complete the upgrade.

Refer to the keycode data sheet when entering the ISM parameters, adding packages or changing the AUX ID.

How to upgrade software on an existing Option 11C Compact

Summary of steps

The Software Upgrading and Installation steps are summarized in the following list. They consist of:

- Making sure that the Software Delivery (PCMCIA) card is installed.
- Selecting the method of invoking the Software Installation Program.
- Selecting the System Upgrade function.
- Selecting Feature Set and packages.
- Selecting a database to install.
- Selecting Incremental Software Management (ISM) parameters.
- Validating keycodes.
- Loading the software.

Upgrading to the new release of software

The following procedure describes how to upgrade and install the software using Software Delivery (PCMCIA) card.

Procedure 68

Software Upgrading Procedure

- 1 Perform a Data Dump (EDD).

To perform an EDD:

- Load overlay program 43 (LD 43).
- Enter command EDD.

- 2 If not previously done, install the Software Delivery (PCMCIA) card in the socket labeled A in the faceplate of the SSC Card in the Option 11C Compact.

To install the Software Delivery (PCMCIA) card:

- Insert the PCMCIA card in slot A in the PCMCIA socket located in the faceplate of the NTMW01 SSC card. Gently press on the PCMCIA card until it is firmly seated.

3 Select the method of invoking the Software Installation Program.

There are two methods of invoking the Software Installation Program:

- By using the UPGRADE command in Overlay 143 (this is the recommended method — no SYSLOAD).

—or—

- By pressing the 'control' and 'I' keys on the keyboard when prompted after the Software Delivery card is installed (this method requires a SYSLOAD).

If you wish to invoke the program using Overlay 143 go to Step 4

If you wish to wish to invoke the program during a SYSLOAD go to Step 5

4 Invoke the Software Installation Program using Overlay 143.

Note: Perform this step only when using the Overlay 143 to invoke the Software Installation Program. To invoke the program during a SYSLOAD, skip this step and do Step 5.

Login to the system by entering **LOGI<cr>** then enter the pass word in response to **PASS?**.

Note: The response to **PASS?** is unique to each system.

Once logged in, enter:

LD 143<cr>

UPGRADE<cr>

If

SOFTWARE INSTALLATION PROGRAM

message appears

go to Step 6

If

SOFTWARE INSTALLATION PROGRAM

message does not appear

Repeat Step 4 (this step) and make sure correct information is entered

- 5 Invoke the Software Installation Program during a SYSLOAD.

Note: Perform this step only when invoking the Software Installation Program during a SYSLOAD. To invoke the program using Overlay 143, disregard this step and do Step 4 instead.

Invoke a system reload (SYSLOAD) by setting the circuit breaker on the front of the power supply to OFF then to ON.

Note: When the FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE INSTALLATION PROGRAM message appears a response must be entered within 5 seconds to invoke the Installer Setup Program.

During SYSLOAD, the following prompt will appear:

```
FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE
INSTALLATION PROGRAM
```

Press and hold '**control**' key and press '**I**'

- 6 Select item 2 from the Main Menu.

```
Software Installation Main Menu
```

```
1. New System Installation - From Software Daughterboard
2. System Upgrade
3. Utilities
4. New System Installation - From Software Delivery Card
[q]uit, [h]elp or [?], <cr> - redisplay
```

- 7 Select the type of upgrade to be performed.

```
Select type of upgrade to be performed:
```

```
1. New Software Upgrade
2. Feature/parameter Upgrade
[q]uit, <cr> current menu, [m]ain menu, [h]elp or
[?], [p]revious menu
```

```
Enter Selection:
```

```
2<cr>
```

8 Select the Feature Set to be enabled.

Note: The Feature Set selected must match the ones provided with key codes. The Feature Set names shown below are examples only.

*** NOTE: The following questions require information on the Keycode Data Sheet.
Please have it available.***

*** NOTE: If an External Data Card is being used for this system, please insert it into drive b: Now.***

(The following feature sets are examples)

Select Feature Set You Wish to Enable:

1. Office Communications (NTSKxxxx)
2. Inter-Office Communications NTSKxxxx)

[q]uit, [p]revious, [m]ain menu, [h]elp or [?],
<cr> redisplay

Enter Selection:

2<cr> (Inter-Office Communications)

9 Indicate whether or not packages are to be added.

Feature Set Selection: Inter-Office Communications

n<cr> (no)
y<cr> (yes)

If the response was **n**
go to Step 12

the response was **y**
go to Step 10

10 Select the Feature packages to be added.

Summary of Packages selected is:

0-1 7-14 16-25 32-36 70-76 79-83 90 95 98 107-108 113-116
125-127

(example)

Enter packages (s) to be added, blank line to end:

256-259<cr>

<cr> (ends selection entry or if no packages are to be added)

11 Confirm Feature Set and added packages.

Your Feature Set Selection is "Inter-Office
Communications":
Additional Packages selected: 256-259
Summary of Packages selected is:
0-1 7-14 16-25 32-36 70-76 79-83 90 95 98 107-108 113-116
125-127

...

...

256-259

Is this correct?

n<cr> (no)

y<cr> (yes)

If the response was **n**
go to Step 8

If the response was **y**
go to Step 12

12 Review ISM parameters.

Note: The ISM parameters displayed on the terminal screen are the default settings associated with the Feature Set selection. These settings can be accepted without changes or changed to suit the requirements of the system.

Current ISM Parameters:

TNS (0048) (number of terminal numbers)
AGNT (0128) (number of ACD agents)
ACDN (0100) (number of ACD DNs)
AST (0000) (number of associate Sets)
DSL (0000) (number of Digital Subscriber Loops)
LTID (0000) (number of Logical Terminal IDs)
MOPT (0000) (Meridian Mail option)

Do you wish to change ISM parameters?

n<cr> (no change)

y<cr> (change)

If the response was **n**
go to Step 15

If the response was **y**
go to Step 13

13 Select ISM parameters.

(example)

Enter new ISM parameters, <cr> to leave as is:

TNS (0048)	64<cr> (change)
AGNT (0128)	<cr> (no change)
ACDN (0100)	<cr> (no change)
AST (0000)	<cr> (no change)
DSL (0000)	<cr> (no change)
LTID (0000)	<cr> (no change)
MOPT (0000)	<cr> (no change)

14 Confirm ISM parameters.

New ISM parameters are:

TNS (0064)
AGNT (0128)
ACDN (0100)
AST (0000)
DSL (0000)
LTID (0000)
MOPT (0000)

Is this correct?

n<cr> (no)

y<cr> (yes)

a<cr> (abort, return to main menu)

If the response was **n**
go to Step 12

If the response was **y**
go to Step 15

15 Define the AUX ID.

Note: The default AUX ID is the system ID provided with the Option 11C Compact.

(example)

Security ID: 20000326

Current AUX ID: 20000326

Do you wish to change the AUX ID?

y<cr> (yes)

n<cr> (no)

a<cr> (abort, return to main menu)

If the response was **n**
go to Step 17

the response was **y**
go to Step 16

16 Enter the AUX ID.

Enter the new AUX ID,
<cr> to maintain

12121212<cr>

New AUX ID: 12121212

Is this correct?

y<cr> (yes)

n<cr> (no)

a<cr> (abort, return to main menu)

If the response was **n**
go to Step 15

If the response was **y**
go to Step 17

17 Review and confirm information entered.

Software Upgrade Summary:

System ID	:	20000326	
Aux ID	:	12121212	
Added Pkgs	:	none	
Feature Set	:	Inter-Office Communications	
Database	:	Company.ABC	
		OLD	NEW
S/W Release	:	0100	0100
ISM Parameters		OLD	NEW
TSN	:	0048	0064
AGNT	:	0128	0128
ACDN	:	0100	0100
AST	:	0000	0000
DSL	:	0000	0100
LTID	:	0000	0000
MOPT	:	0000	0000

Is this correct?

y<cr> (yes)**n**<cr> (no)**a**<cr> (abort, return to main menu)If the response was **n**

go to Step 8

If the response was **y**

go to Step 18

18 Enter the keycodes

Note: Enter keycodes in place of **x**, **y**, **z**, as shown.

Enter new Keycodes:

Key 1: **XXXXXXXX<cr>**

Key 2: **YYYYYYYY<cr>**

Key 3: **ZZZZZZZZ<cr>**

If after the last keycode is entered,

'Keycode validation successful'

WARNING A system restart will be invoked as part
of the software installation process"

message appears go to Step 19

after the last keycode is entered,

'Keycode validation unsuccessful'

message appears go to Step 18 again to re-enter correct keycodes

Note: After three unsuccessful keycode validation attempts, the
following message appears.

Keycode validation unsuccessful.

Installation aborted...returning to main menu.

19 Complete the software installation.

Are you sure you wish to perform the installation?

y<cr> (yes)

n<cr> (no)

If response was **y**

—End—

If response was **n**

go to Step 6

End of Procedure

How to revert to the previous release of software

The following procedure describes how to revert to the previous release of software, Feature Set, Customer data and ISM Parameters using the Undo Installation option.

This option requires that the same Software Delivery (PCMCIA) card that was used to upgrade this Option 11C Compact be installed and used to revert it to its former database. The Software Delivery (PCMCIA) card must not have been used to upgrade a subsequent Option 11C Compact, since the Security ID will no longer match this system.

Note: When upgrading, the existing Option 11C Compact database is saved (backed-up) on the Software Delivery (PCMCIA) card. The card contains only the backed-up database and Security ID of the last Option 11C Compact with which it was used.

Summary of steps

The steps to revert to the previous database are summarized in the following list. They consist of:

- Checking to make sure the correct Software Delivery (PCMCIA) card is installed.
- Selecting the Utilities menu.
- Selecting Undo Installation option.
- Reverting to the previous database.

Reverting to previous release of software

The following procedure describes how to revert to the previous release of software using PCMCIA card.

Procedure 69
Reverting to Previous Software Procedure

- 1 If not previously done, install the Software Delivery (PCMCIA) card in the socket in the faceplate of the SSC Card.

Note: This Software Delivery card must be the same one that was used to upgrade this Option 11C Compact. It must not have been used to upgrade a subsequent Option 11C Compact because the Security ID will no longer match and the “undo” function will fail.

To install the Software Delivery card:

- Insert the card in slot A in the PCMCIA socket located in the faceplate of the NTMW01 Small System Controller (SSC) card. Gently press on the Software Delivery card until it is firmly seated.

- 2 Select the method of invoking the Software Installation Program.

There are two methods of invoking the Software Installation Program:

- By using the UPGRADE command in Overlay 143 (this is the recommended method — no SYSLOAD).

—or—

- By pressing the ‘control’ and ‘I’ keys on the keyboard when prompted after the Software Delivery card is installed (this method requires a SYSLOAD).

If you wish to invoke the program using Overlay 143
go to Step 4

If you wish to wish to invoke the program when prompted
go to Step 5

- 3** Invoke the Software Installation Program using Overlay 143.

Note: Perform this step only when using the Overlay 143 to invoke the Software Installation Program. To invoke the program during a SYSLOAD, skip this step and do Step 5.

Login to the system by entering **LOGI<cr>** then enter the pass word in response to **PASS?**.

Note: The response to **PASS?** is unique to each system.

Once logged in, enter:

LD 143<cr>

UPGRADE<cr>

If

SOFTWARE INSTALLATION PROGRAM
message appears go to Step 6

If

SOFTWARE INSTALLATION PROGRAM
message does not appear repeat Step 3 (this step) and make sure
correct information is entered

- 4** Invoke the Software Installation Program when prompted.

Note: Perform this step only when invoking the Software Installation Program when prompted after the Software Delivery card is installed. To invoke the program using Overlay 143, disregard this step and do Step 3 instead.

Start system reload (SYSLOAD) by setting the circuit breaker on the front of the power supply to OFF then to ON.

Note: When the FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE INSTALLATION PROGRAM message appears a response must be entered within 5 seconds to invoke the program.

During SYSLOAD, the following prompt will appear:

FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE
INSTALLATION PROGRAM

Press and hold 'control' key and press 'I'

5 Select Utilities from the Main Menu.

```
SOFTWARE INSTALLATION PROGRAM
*****
Verify Security ID: 12345678
*****

Software Installation Main Menu
1. New System Installation - From Software Daughterboard
2. System Upgrade
3. Utilities
4. New System Installation - From Software Delivery Card
[q]uit, [h]elp or [?], <cr> - redisplay

Enter Selection:
3<cr>
```

6 Select item 6 from the Utilities Menu.

```
Utilities Menu:
1. Restore backed Up database
2. Archive Database Utilities
3. Install Archived database
4. Review Upgrade Information
5. Clear Upgrade Information
6. Undo Installation
7. Flash Boot ROM Utilities
8. Current Installation Summary

[q]uit, [p]revious, [m]ain, [h]elp [?], <cr> redisplay

Enter Selection:
6<cr> (Undo Installation)
```

7 Complete the software installation.

```
*** WARNING *** A system restart will be invoked as part
of the Undo Installation process.
Are you sure you wish to undo the installation?

y<cr> (yes)
n<cr> (no)

If response was y
—End—

If response was n
go to Step 6
```

End of Procedure

Feature Set and ISM Parameters upgrade

Introduction

This section describes how to upgrade the Feature set and ISM Parameters on a Option 11C Compact when the software is not being upgraded to a new release (same release upgrade). The Software Delivery (PCMCIA) card is not required to perform this type of upgrade.

How to upgrade Feature Set and ISM Parameters

Summary of steps

The Upgrading and Installation steps are summarized in the following list. They consist of:

- Invoking the Software Installation Program.
- Selecting the System Upgrade function.
- Selecting Feature Set and packages (optional).
- Selecting Incremental Software Management (ISM) parameters (optional).
- Validating keycodes.
- Loading the software.

Upgrading Feature Set and ISM Parameters

The following procedure describes how to upgrade the Feature Set and ISM Parameters without upgrading the software release.

Procedure 70
Upgrading Feature Set and ISM Parameter Procedure

- 1** Invoke the Software Installation Program using Overlay 143.
Login to the system by entering **LOGI<cr>** then entering the password.

Note: The response to **PASS?** is unique to each system.

Once logged in, enter:

LD 143<cr>

UPGRADE<cr>

If

SOFTWARE INSTALLATION PROGRAM

message appears go to Step 2

If

SOFTWARE INSTALLATION PROGRAM

message does not appear repeat Step 1 (this step) make sure correct information is entered

- 2** Select item 2 from the Main Menu.

Software Installation Main Menu

1. New System Installation - From Software Daughterboard

2. System Upgrade

3. Utilities

4. New System Installation - From Software Delivery Card

[q]uit, [h]elp or [?], <cr> - redisplay

Enter Selection:

2<cr>

- 3** Select item 3 from the Select Upgrade to be Performed menu.

Select type of upgrade to be performed:

1. New Software Upgrade

3. Feature/parameter Upgrade

[q]uit, <cr> current menu, [m]ain menu, [p]revious menu

Enter Selection:

1<cr>

- 4** Indicate whether the current Feature Set will or will not be retained.

Do you wish to change the Feature Sets?

n<cr> (no)

y<cr> (yes)

a<cr> (abort, return to main menu)

If the response was n

go to Step 6

the response was y

go to Step 5

- 5** Select the Feature Set to be enabled.

Note: The Feature Set selected must match the ones provided with key codes. The Feature Set names shown below are examples only.

*** NOTE: The following questions require information on the Keycode Data Sheet.
Please have it available.***

*** NOTE: If an External Data Card is being used for this system, please insert it into drive b: Now.***

(The following feature sets are examples)

Select Feature Set You Wish to Enable:

1. Office Communications (NTSKxxxx)

2. Inter-Office Communications NTSKxxxx)

3. Retain current Feature Set

Note: Item 3 retains existing ISM parameters.

(example)

Enter Selection:

2<cr> (Inter-Office Communications)

- 6** Indicate whether or not packages are to be added.
(example)
Feature Set Selection: Inter-Office Communications
Do you wish to add packages?
n<cr> (no)
y<cr> (yes)
a<cr> (abort, return to main menu)

If the response was **n**
go to Step 9

If the response was **y**
go to Step 7
- 7** Select the Feature packages to be added.
(example)

Summary of Packages selected is:
0-1 7-14 16-21 23-25 32-36 70-76 79-83 90 95 98 107-108
113-116 125-127

Enter packages (s) to be added, blank line to end:

22<cr>
<cr> (ends selection entry or if no packages are to be added)
- 8** Confirm Feature Set and added packages.

Your Feature Set Selection is "Inter-Office
Communications":
Additional Packages selected: 22
Summary of Packages selected is:
0-1 7-14 16-25 32-36 70-76 79-83 90 95 98 107-108 113-116
125-127
...
...

Is this correct?

n<cr> (no)
y<cr> (yes)
a<cr> (abort, return to main menu)

If the response was **n**
go to Step 5 and enter the correct Feature set and packages

If the response was **y**
go to Step 5

9 Review ISM parameters.

Note: The ISM parameters displayed on the terminal screen are the default settings associated with the Feature Set selection. If Feature Set is not changed, the parameters displayed remain as the current ISM parameters. These settings can be accepted without changes or changed to suit the requirements of the system.

Current ISM Parameters:

TNS (0048) (number of terminal numbers)
AGNT (0128) (number of ACD agents)
ACDN (300) (number of ACD DN's)
AST (0000) (number of associate Sets)
DSL (0000) (number of Digital Subscriber Loops)
LTID (0000) (number of Logical Terminal IDs)
MOPT (0000) (Meridian Mail option)

Do you wish to change ISM parameters?

n<cr> (no)
y<cr> (yes)
a<cr> (abort, return to main menu)

If the response was **n**
go to Step 12

If the response was **y**
go to Step 10

10 Select ISM parameters.

(example)

Enter new ISM parameters, <cr> to leave as is:

TNS (0048) **64<cr>** (change)
AGNT (0128) **<cr>** (no change)
ACDN (300) **<cr>** (no change)
AST (0000) **<cr>** (no change)
DSL (0000) **<cr>** (no change)
LTID (0000) **<cr>** (no change)
MOPT (0000) **<cr>** (no change)

11 Confirm ISM parameters.

New ISM parameters are:

TNS (0064)

AGNT (0128)

ACDN (0100)

AST (0000)

DSL (0000)

LTID (0000)

MOPT (0000)

Is this correct?

n<cr> (no)

y<cr> (yes)

a<cr> (abort, return to main menu)

If the response was **n**

go to Step 9

If the response was **y**

go to Step 12

12 Define the AUX ID.

Note: The default AUX ID is the system ID provided with the Option 11C Compact.

(example)

Security ID: 12121212

Current AUX ID: 02020202

Do you wish to change the AUX ID?

y<cr> (yes)

n<cr> (no)

a<cr> (abort, return to main menu)

If the response was **n**

go to Step 14

If the response was **y**

go to Step 13

13 Enter the AUX ID.

Enter the new AUX ID,
<cr> to maintain

12121212<cr>

New AUX ID: 12121212

Is this correct?

y<cr> (yes)

n<cr> (no)

a<cr> (abort, return to main menu)

If the response was **n**
go to Step 12

If the response was **y**
go to Step 14

14 Review and confirm information entered.

Same Release Upgrade Summary:

Security ID: 12121212

AUX ID : 12121212

OLD	NEW
-----	-----

Software Release

Feature Set:	Inter-Office Communications
--------------	-----------------------------

Added Pkgs :	none
--------------	------

ISM Parameters

TSN :	0048	0064
-------	------	------

AGNT :	0128	0128
--------	------	------

ACDN :	0100	0100
--------	------	------

AST :	0000	0000
-------	------	------

DSL :	0000	0000
-------	------	------

LTID :	0000	0000
--------	------	------

MOPT :	0000	0000
--------	------	------

Is this correct?

n<cr> (no)

y<cr> (yes)

a<cr> (abort, return to main menu)

If the response was **n**
go to Step 4 to make changes

If the response was **y**
go to Step 15 to enter keycodes

15 Enter the keycodes

Note: Enter keycodes in place of **x, y, z**, as shown.

Enter new Keycodes:

Key 1: **XXXXXXXX<cr>**

Key 2: **YYYYYYYY<cr>**

Key 3: **ZZZZZZZZ<cr>**

If after the last keycode is entered,
`Keycode validation successful`
WARNING A system restart will be invoked as part
of the software installation process`
message appears go to Step 16

If after the last keycode is entered,
`Keycode validation unsuccessful`
message appears go to Step 15 again to re-enter correct keycodes

Note: After three unsuccessful keycode validation attempts, the
following message appears.

Keycode validation unsuccessful.
Installation aborted...returning to main menu.

16 Complete the software installation.

Are you sure you wish to perform the installation?

y<cr> (yes)

n<cr> (no)

a<cr> (abort, return to main menu)

If response was **y**

—End— See Note

If response was **n**

go to Step 2

Note: A system reload (SYSLOAD) must be invoked for the changes to take effect. However, it need not be invoked immediately since the information is stored in the Option 11C Compact until the SYSLOAD is performed. Since a SYSLOAD interrupts service on the system, it may be preferable to invoke it later when a service interruption is less inconvenient.

End of Procedure

Restoring a backed up database

Introduction

This section describes how to use the Restore Backed Up database utility to restore a database from any of the following sources:

- the backup Flash Drive (using LD 143)
- a Software Delivery (PCMCIA) card (using LD 143)
- a Customer Configuration Backup and Restore (CCBR) file (using LD 143)

The procedures in this section are used to restore a backed up database from an Option 11C Compact system with a different security ID, Key code and/or feature set. The database must be from an Option 11C Compact system with X27 software and must be from the same or a previous version of the software.

Note: Restoring a backed up database from X11 software is not supported.

How to restore a backed up database

Summary of steps

The steps to restore a backed up database are summarized in the following list. They consist of:

- Selecting the Utilities function.
- Selecting the database source
- Restoring the database

Restoring the database

The following procedure describes how to restore the database.

Procedure 71

Database Restoration Procedure

- 1 Invoke the Install Setup Program using Overlay 143.

Login to the system by entering **LOGI<cr>** and enter the password in response to **PASS?**.

Note: The response to **PASS?** is unique to each system. The response shown below is an example.

Enter the following:

LD 143<cr>

UPGRADE<cr>

If

SOFTWARE INSTALLATION PROGRAM

message appears go to Step 2

If

SOFTWARE INSTALLATION PROGRAM

message does not appear repeat Step 1 (this step) and make sure correct information is entered

- 2 Select Utilities from the Main Menu.

Software Installation Main Menu

1. New Install - From Software Daughterboard

2. System Upgrade

3. Utilities

4. New System Installation - From Software Delivery Card

[q]uit, [h]elp or [?], <cr> - redisplay

Enter Selection:

3<cr>

3 Select item 1 from the Utilities Menu.

Utilities Menu:

1. Restore backed Up Database
2. Archive Database Utilities
3. Install Archived database
4. Review Upgrade Information
5. Clear Upgrade Information
6. Undo Installation
7. Flash Boot ROM Utilities
8. Current Installation Summary

[q]uit, [p]revious, [m]ain, [h]elp [?], <cr> redisplay

Enter Selection:

1<cr> (Restore Backed Up Database)

4 Select source of database.

Select Restore Database Source:

1. Backup Flash Drive
2. External Drive
3. Option 11C Compact CCBF File

[q]uit, [p]revious, [m]ain menu, [h]elp or [?],
<cr> - redisplay

Enter Selection:

3<cr> (CCBF Restore file)

WARNING: You must have an Option 11C Compact CCBF file backed up.

WARNING: Your internal backup will be erased.

Entering RECEIVE mode for data transfer.

Please commence XMODEM file transfer of the CCBF file.

Are you sure you wish to perform the Restore?

(y/n/[a]bort)

y (yes)

Wait -- Erasing internal backup

R>CCF (Commence upload from host machine)

If
Restore successful
message is displayed go to Step 15

If
Restore unsuccessful
BKP011 message is displayed go to Step 1

Note: Definition of BKP011 message is:
Restore successful but site ID in backup image differs from that of the switch. This is expected if the restored database is of a system with a different site ID.

5 Confirm Restore Database from the Backup Flash Drive. **I**

Note: Perform this step only when restoring a database from the flash drive. If restoring from another source, return to Step 3.

Backup file on Flash Drive from 95/04/01 will be restored
to the Primary Drive

Are you sure you wish to perform the Restore?

n<cr> (no)
y<cr> (yes)
a<cr> (abort, return to main menu)

If response was **y**
go to Step 6

If response was **n**
go to Step 2

6 Complete restore from Flash Drive

Note: Perform this step only when restoring a database from the flash drive. If restoring from another source, return to Step 3.

If
Restore successful
message is displayed
—End—

If
Restore unsuccessful
message is displayed go to Step 2

Note: The `Restore successful` message indicates that the database has been successfully restored and no further action is required.

7 Confirm Restore Database from the External Drive (PCMCIA card).

Note: Perform this step only when restoring a database from an external drive source (PCMCIA). If restoring from another source, return to Step 3.

Restoring primary drive from External Drive. FRI OCT 20 15:56:22
1995

System Restart required to activate restored database

Are you sure you wish to perform the Restore?

n<cr> (no)
y<cr> (yes)
a<cr> (abort, return to main menu)

If response was **y**
go to Step 15

If response was **n**
go to Step 2

8 Restore Database from the CCBR Restore file.

Note: Perform this step only when restoring a database from a CCBR Restore file. If restoring from another source, return to Step 3.

WARNING: You must have an Option 11C Compact CCBF file backed up.

WARNING: Your internal backup will be erased.

Are you sure you wish to Restore?

n<cr> (no)

y<cr> (yes)

a<cr> (abort, return to main menu)

Entering receive mode for data transfer...

Escape back to host machine and commence upload...

Database transfer complete...

Restoring Primary drive from CCBF file...

Restore successful.

System Restart required to activate restored database.

If

Restore successful

message is displayed go to Step 15

If

Restore unsuccessful

BKP011 message is displayed go to Step 1

If

Restore unsuccessful

message other than BKP011 is displayed go to Step 2

Note: Definition of BKP011 message is:

Restore successful but site ID in backup image differs from that of the switch. This is expected if the restored database is of a system with a different site ID.

9 Load Install Setup Program Overlay 143.

Enter

LD 143

UPGRADE

If

SOFTWARE INSTALLATION PROGRAM

message appears go to Step 2

If
SOFTWARE INSTALLATION PROGRAM
message does not appear go to Step 1

10 Select Utilities from the Main Menu.

Software Installation Main Menu
1. New Install - From Software Daughterboard
2. System Upgrade
3. Utilities
4. New System Installation - From Software Delivery Card
[q]uit, [h]elp or [?], <cr> - redisplay

Enter Selection:

3<cr>

11 Select item 1 from the Utilities Menu.

Utilities Menu:
1. Restore backed Up Database
2. Archive Database Utilities
3. Install Archived database
4. Review Upgrade Information
5. Clear Upgrade Information
6. Undo Installation
7. Flash Boot ROM Utilities
8. Current Installation Summary

[q]uit, [p]revious, [m]ain, [h]elp or [?], <cr> -
redisplay

Enter Selection:

1<cr> (Backup Flash Drive)

12 Select 1 to Backup flash drive.

Select Restore Database Source:
1. Backup Flash Drive
2. External Drive
3. Option 11C Compact CCBF File

q]uit, [p]revious, [m]ain, [h]elp or [?], <cr> -
redisplay

Enter Selection:

1<cr> (Backup Flash Drive)

- 13** Confirm Restore Database from the Backup Flash Drive.

Note: Perform this step only when restoring a database from the flash drive. If restoring from another source, return to Step 3.

Backup file on Flash Drive from WED JUL 19:44:36 1997
will be restored to the Primary Drive

Are you sure you wish to perform the Restore?

n<cr> (no)

y<cr> (yes)

a<cr> (abort, return to main menu)

If

response was **y**

go to Step 15

If

response was **n**

go to Step 2

- 14** Complete restore from Flash Drive.

Note: Perform this step only when restoring a database from the flash drive. If restoring from another source, return to Step 3.

Restore successful.

If

Restore successful

message is displayed go to Step 15

If

Restore unsuccessful

message is displayed go to Step 2

- 15** Invoke a system restart (SYSLOAD).

Invoke a system reload (SYSLOAD) by setting the circuit breaker on the front of the power supply in the main cabinet to OFF then to ON.

If SYSLOAD was successful

—End—

If SYSLOAD was unsuccessful go to Step 1

End of Procedure

Archiving and removing databases

Introduction

This section describes how to use the Archive feature to:

- archive a new customer database
- list the databases that are archived
- remove existing archived databases.

The database can be defined in an off-site lab environment and saved (archived) on a Software Delivery (PCMCIA) card until it is required. It can then be loaded in the customer's system using the Software Delivery card.

How to use archive feature

The customer database must first be defined and loaded into the flash ROM on the NTMW01 Small System Controller (SSC) card before it can be archived on the Software Delivery card.

Methods used to define and load customer databases are described in the following sections:

- [“Software upgrade to a new release or issue” on page 285](#)
- [“Feature Set and ISM Parameters upgrade” on page 299](#)

Summary of steps

The steps to archive a customer database are summarized in the following list. They consist of:

- Checking to make sure the correct Software Delivery card is installed.
- Selecting the Utilities function.
- Selecting Archive option.

Using the archive feature

The following procedure describes how to use the archive feature to list, add and remove customer databases.

Procedure 72
Using the archive feature

- 1 If not previously done, install the Software Delivery card in the socket in the faceplate of the SSC Card.

Note: When adding a customer database to the archive, it must first be loaded in the SSC card of this system. Only a customer database that is already defined and loaded in the SSC card can be added to the archive. Make sure that the desired database is defined and loaded before attempting to archive it. However, archived databases can be listed and removed from the archive directly from the Software Delivery card without being loaded in the SSC card.

Methods used to define and load customer databases are described in the following sections:

["Software upgrade to a new release or issue" on page 285](#)

Feature Set and ISM Parameters upgrade

To install the Software Delivery (PCMCIA) card:

- Insert the PCMCIA card in slot A in the PCMCIA socket in the faceplate of the NTMW01 SSC card. Gently press on the PCMCIA card until it is firmly seated.

- 2 Select the method of invoking the Software Installation Program. |

There are two methods of invoking the Software Installation Program:

- By using the UPGRADE command in Overlay 143 (this is the recommended method — no SYSLOAD). |

—or—

- By pressing the 'control' and 'I' keys on the keyboard when prompted after the Software Delivery card is installed (this method requires a SYSLOAD). |

If you wish to invoke the program using Overlay 143 go to Step 3 |

If you wish to wish to invoke the program when prompted go to Step 4 |

- 3 Invoke the Software Installation Program using Overlay 143.

Note: Perform this step only when using the Overlay 143 to invoke the Software Installation Program. To invoke the program during a SYSLOAD, skip this step and do Step 4.

Login to the system by entering **LOGI<cr>** and entering the password in response to **PASS?**.

Note: The response to **PASS?** is unique to each system. The response shown below is an example.

Enter the following:

LD 143<cr>

UPGRADE<cr>

If

SOFTWARE INSTALLATION PROGRAM

message appears go to Step 5

If

SOFTWARE INSTALLATION PROGRAM

message does not appear repeat Step 3 (this step) and make sure correct information is entered

- 4 Invoke the Software Installation Program when prompted.

Note: Perform this step only when invoking the Software Installation Program when prompted after the Software Delivery card is installed. To invoke the program using Overlay 143, disregard this step and do Step 3 instead.

Invoke a system reload (SYSLOAD) by setting the circuit breaker on the front of the power supply to OFF then to ON.

Note: When the FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE INSTALLATION PROGRAM message appears a response must be entered within 5 seconds to invoke the Installer Setup Program.

During SYSLOAD, the following prompt will appear:

FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE
INSTALLATION PROGRAM

Press and hold 'control' key and press 'i'

5 Select Utilities from the Main Menu.

Software Installation Main Menu

1. New System Installation - From Software Daughterboard
 2. System Upgrade
 3. Utilities
 4. New System Installation - From Software Delivery Card
- [q]uit, [h]elp or [?], <cr> - redisplay

Enter Selection:

3<cr>

6 Select item 2 from the Utilities Menu.

Utilities Menu:

1. Restore Backed Up database
2. Archive Database Utilities
3. Install Archived database
4. Review Upgrade Information
5. Clear Upgrade Information
6. Undo Installation
7. Flash Boot ROM Utilities
8. Current Installation Summary

[q]uit, <cr>current menu, [m]ain, [p]revious menu,

Enter Selection:

2<cr> (Archive Customer defined databases)

7 Select archive function.

Customer Database Archives:

1. List customer databases
2. Remove customer database
3. Archive a customer database

[q]uit, [p]revious, [m]ain, [h]elp or [?] <cr> -
redisplay

Enter Selection:

1<cr> (List Customer databases)

2<cr> (Remove Customer database)

3<cr> (Archive a Customer database)

If the response was **1** go to Step 8

If the response was **2** go to Step 9

If the response was **3** go to Step 10

8 Review list of archived databases.

1. Company.ABC
2. XYZ.Offices
3. Green.Packaging

Customer Database Archives:

1. List customer databases
2. Remove customer database
3. Archive a customer database

[q]uit, [p]revious, [m]ain, [h]elp or [?] <cr> -
redisplay

If a database is to be removed from the archive go to Step 9

If a database is to be added to the archive go to Step 10

If end of activity **q<cr>** — End—

- 9** Remove the desired customer database from the archive.

Note: Perform this step only when removing a customer database from the archive. To add a database to the archive, do Step 10.

1. Company.ABC
2. XYZ.Offices
3. Green.Packaging

q]uit, <cr>current menu, [m]ain, [p]revious menu,
(example)

Enter selection 3<cr>

Remove database Green.Packaging database?

y<cr> (yes)

n<cr> (no)

If a database is to be added to the archive m<cr> Step 5

If end of activity q<cr> — End—

- 10** Add the customer database to the archive.

Note: Perform this step only when adding a customer database to the archive.

(example)

Enter a Customer name for your customized data:

250SidneySt<cr>

Customer database 250SidneySt created.

Copying database from primary drive to 250SidneySt.

End of Procedure

Installing an archived database

Introduction

This section describes how to install an archived Customer Database in a designated Meridian 1 Option 11C Compact using the Software Delivery (PCMCIA) card.

How to install an archived database

Summary of steps

The archived customer database installation steps are summarized in the following list. They consist of:

- Checking to make sure the Software Delivery card is installed.
- Selecting the Utilities menu.
- Selecting Install Archived database option.
- Loading the database.

Installing the database

The following procedure describes how to install an archived database using Software Delivery card.

Procedure 73

Customer Database Installation Procedure (Continued)

- 1 If not previously done, install the Software Delivery card in the socket in the faceplate of the System Core Card.

To install the Software Delivery card:

- Insert the Software Delivery card in slot A of the PCMCIA socket located in the faceplate of the NTMW01 System Core card. Gently press on the Software Delivery card until it is firmly seated.

2 Select the method of invoking the Software Installation Program.

There are two methods of invoking the Software Installation Program:

- By using the UPGRADE command in Overlay 143 (this is the recommended method — no SYSLOAD).

—or—

- By pressing the 'control' and 'I' keys on the keyboard when prompted after the Software Delivery card is installed (this method requires a SYSLOAD).

If you wish to invoke the program using Overlay 143 go to Step 4

If you wish to wish to invoke the program when prompted go to Step 6

3 Invoke the Software Installation Program using Overlay 143.

Note: Perform this step only when using the Overlay 143 to invoke the Software Installation Program. To invoke the program during a SYSLOAD, skip this step and do Step 6.

Login to the system by entering **LOGI<cr>** and entering the password in response to **PASS?**.

Note: The response to **PASS?** is unique to each system.

Then enter the following:

LD 143<cr>

UPGRADE<cr>

If

SOFTWARE INSTALLATION PROGRAM
message appears go to Step 8

If

SOFTWARE INSTALLATION PROGRAM
message does not appear repeat Step 3 (this step) and make sure
correct information is entered

- 4 Invoke the Software Installation Program when prompted.

Note: Perform this step only when invoking the Software Installation Program when prompted after the Software Delivery card is installed. To invoke the program using Overlay 143, disregard this step and do 3 instead.

Invoke a system reload (SYSLOAD) by setting the circuit breaker on the front of the power supply in the main cabinet to OFF then to ON.

Note: When the FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE INSTALLATION PROGRAM message appears a response must be entered within 5 seconds to invoke the Installer Setup Program.

During SYSLOAD, the following prompt will appear:

FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE
INSTALLATION PROGRAM

Press and hold 'control' key and press 'I'

- 5 Select Utilities from the Main Menu.

Software Installation Main Menu

1. New System Installation - From Software Daughterboard
2. System Upgrade
3. Utilities
4. New System Installation - From Software Delivery Card
[q]uit, [h]elp or [?], <cr> - redisplay

Enter Selection:

3<cr>

6 Select item 6 from the Utilities Menu.

Utilities Menu:

1. Restore Backed Up database
2. Archive Customer defined databases
3. Install Archived database
4. Review Upgrade Information
5. Clear Upgrade Information
6. Undo Installation
7. Flash Boot ROM Utilities
8. Current Installation Summary

[q]uit, <cr>current menu, [m]ain, [p]revious menu,

Enter Selection:

3<cr> (Install Archived database)**7** Select the Customer Database.

Customer Database Archives available:

1. Company.ABC
2. XYZ.Offices
3. Green.Packaging

[q]uit, [m]ain, [p]revious menu, <cr> - redisplay

(example)

Enter Selection:

3<cr> (Install Green.Packaging database)**8** Confirm database selection.

(example)

Green.Packaging database selected for restore?

y<cr> (yes)**n<cr>** (no)If response was **y** go to Step 9If response was **n** go to Step 7

9 Restore the archived database.

Restoring Archived database to Primary drive...

Restore successful.

System Restart required to activate database.

If restore was successful —End—

If restore was not successful go to Step 5

End of Procedure

Reviewing and clearing upgrade information

Introduction

This section describes how to use the Review Upgrade Information and Clear Upgrade Information options.

These options provide a means of reviewing the upgrade information that was entered and, if required, a means of clearing the upgrade information from the Software Installation Program.

How to review and clear upgrade information

Summary of steps

The steps to review and clear upgrade information are summarized in the following list. They consist of:

- Checking to make sure the Software Delivery (PCMCIA) card is installed.
- Selecting the Utilities menu.
- Selecting Review Upgrade Information option.
- Selecting Clear Upgrade Information option (if required).

Reviewing and clearing upgrade information

The following procedure describes how to review and, if desired, clear the upgrade information.

Procedure 74

Review and Clear Upgrade Information

- 1 If not previously done, install the Software Delivery card in the socket in the faceplate of the NTMW01 Small System Controller (SSC) card.

Note: This Software Delivery card must be the same one that was used to upgrade this Option 11C Compact system. It must not have been used to upgrade a subsequent Option 11C Compact because the Security ID will no longer match and the “undo” function will fail.

To install the Software Delivery card:

- Insert the Software Delivery card in slot A in the PCMCIA socket located in the faceplate of the NTMW01 Small System Controller (SSC) card. Gently press on the Software Delivery card until it is firmly seated.

- 2 Select the method of invoking the Software Installation Program.

There are two methods of invoking the Software Installation Program:

- By using the UPGRADE command in Overlay 143 (this is the recommended method — no SYSLOAD).

—or—

- By pressing the 'control' and 'I' keys on the keyboard when prompted after the Software Delivery card is installed (this method requires a SYSLOAD).

If you wish to invoke the program using Overlay 143 go to Step 3

If you wish to invoke the program when prompted go to Step 4

- 3** Invoke the Software Installation Program using Overlay 143.

Note: Perform this step only when using the Overlay 143 to invoke the Software Installation Program. To invoke the program during a SYSLOAD, skip this step and do Step 4.

Login to the system by entering **LOGI<cr>** then enter the password in response to **PASS?**.

Note: The response to **PASS?** is unique to each system.

Then enter the following:

LD 143<cr>

UPGRADE<cr>

If

SOFTWARE INSTALLATION PROGRAM
message appears go to Step 5

If

SOFTWARE INSTALLATION PROGRAM
message does not appear repeat Step 3 (this step) and make sure
correct information is entered

- 4** Invoke the Software Installation Program when prompted.

Note: Perform this step only when invoking the Software Installation Program when prompted after the Software Delivery card is installed. To invoke the program using Overlay 143, disregard this step and do Step 3 instead.

Invoke a system reload (SYSLOAD) by setting the circuit breaker on the front of the power supply in the main cabinet to OFF then to ON.

Note: When the FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE INSTALLATION PROGRAM message appears a response must be entered within 5 seconds to invoke the Installer Setup Program.

During SYSLOAD, the following prompt will appear:

FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE
INSTALLATION PROGRAM

Press and hold 'control' key and press 'I'

5 Select Utilities from the Main Menu.

Software Installation Main Menu

1. New System Installation - From Software Daughterboard
 2. System Upgrade
 3. Utilities
 4. New System Installation - From Software Delivery Card
- [q]uit, [h]elp or [?], <cr> - redisplay

Enter Selection:

3<cr>

6 Select the Review or Clear option from the Utilities Menu.

Utilities Menu:

1. Restore Backed Up database
2. Archive Customer defined databases
3. Install Archived database
4. Review Upgrade Information
5. Clear Upgrade Information
6. Undo Installation
7. Flash Boot ROM Utilities
8. Current Installation Summary

[q]uit, <cr>current menu, [m]ain, [p]revious menu,

Enter Selection:

4<cr> (Review Upgrade Information)

5<cr> (Clear Upgrade Information)

If response was **4<cr>** go to Step 7

If response was **5<cr>** go to Step 8

7 Review summary of upgrade information.

Software Upgrade Summary:

```

Security ID:          12345678
Aux ID   :            12345678
Database  :           Retain current
                        NEW
S/W Release:          0100
ISM Parameters        NEW
  TSN   :             064
  AGNT  :             0128
  ACDN  :             0100
  AST   :             0000
  DSL   :             0100
  LTID  :             0000
  MOPT  :             0000

```

Return to Step 6**8 Review and clear or retain upgrade information.**

Software Upgrade Summary:

```

Security ID:          12345678
Aux ID   :            12345678
Database  :           Retain current
                        NEW
S/W Release:          0100
ISM Parameters        NEW
  TSN   :             064
  AGNT  :             0128
  ACDN  :             0100
  AST   :             0000
  DSL   :             0100
  LTID  :             0000
  MOPT  :             0000

```

Do you wish to clear the Upgrade information?

y<cr> (yes)**n**<cr> (no)**a**<cr> (abort, return to main menu)If response was **y** —End—If response was **n** go to Step 5

End of Procedure

Using the flash boot ROM utility

Introduction

This section describes how to use the Flash Boot ROM utility to:

- display a list showing the status and version of the Flash Boot ROMs installed in the system and on the Software Delivery (PCMCIA) card (if it is present)
- upgrade the Flash Boot ROM (the Flash Boot ROM is not automatically upgraded when the software is upgraded)
- restore a Flash Boot ROM

How to use the flash boot ROM utility

Summary of steps

The steps to follow to perform the Flash Boot ROM functions are summarized in the following list. They consist of:

- Checking to make sure the Software Delivery (PCMCIA) card is installed, if one is provided.
- Invoking the Software Installation program.
- Selecting the Utilities function.
- Selecting Flash Boot ROM utility.
- Selecting the desired Flash Boot ROM option.
- Invoking the selected Flash Boot ROM function

Using the Flash Boot ROM Utility

The following procedure describes how to use the Flash Boot ROM utility.

Procedure 75
Using Flash Boot ROM Utility

- 1** If not previously done, install the Software Delivery (PCMCIA) card in the socket in the faceplate of the System Core Card.

To install the Software Delivery card:

- Insert the Software Delivery card in slot A of the PCMCIA socket located in the faceplate of the NTMW01 System Core card. Gently press on the Software Delivery card until it is firmly seated.

- 2** Select the method of invoking the Software Installation Program. |

There are two methods of invoking the Software Installation Program:

- By using the UPGRADE command in Overlay 143 (this is the recommended method — no SYSLOAD). |

—or—

- By pressing the 'control' and 'I' keys on the keyboard when prompted after the Software Delivery card is installed (this method requires a SYSLOAD). |

If you wish to invoke the program using Overlay 143 go to Step 3 |

If you wish to invoke the program when prompted go to Step 4 |

- 3 Invoke the Software Installation Program using Overlay 143.

Note: Perform this step only when using the Overlay 143 to invoke the Software Installation Program. To invoke the program during a SYSLOAD, skip this step and do Step 4.

Login to the system by entering **LOGI<cr>** then enter the password in response to **PASS?**.

Note: The response to **PASS?** is unique to each system.

Then enter:

LD 143<cr>

UPGRADE<cr>

If

SOFTWARE INSTALLATION PROGRAM

message appears go to Step 5

If

SOFTWARE INSTALLATION PROGRAM

message does not appear repeat Step 3 (this step) and make sure correct information is entered

- 4 Invoke the Software Installation Program when prompted.

Note: Perform this step only when invoking the Software Installation Program when prompted after the Software Delivery card is installed. To invoke the program using Overlay 143, disregard this step and do Step 3 instead.

Invoke a system reload (SYSLOAD) by setting the circuit breaker on the front of the power supply in the main cabinet to OFF then to ON.

Note: When the FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE INSTALLATION PROGRAM message appears a response must be entered within 5 seconds to invoke the Installer Setup Program.

During SYSLOAD, the following prompt will appear:

FIVE SECONDS TO ENTER CONTROL-I TO INVOKE SOFTWARE
INSTALLATION PROGRAM

Press and hold 'control' key and press 'I'

5 Select Utilities from the Main Menu.

```
SOFTWARE INSTALLATION PROGRAM
*****
Verify Security ID: 12345678
*****
```

Software Installation Main Menu

1. New System Installation - From Software Daughterboard
 2. System Upgrade
 3. Utilities
 4. New System Installation - From Software Delivery Card
- [q]uit, [h]elp or [?], <cr> - redisplay

Enter Selection:

3<cr>

6 Select item 7 from the Utilities Menu.

Utilities Menu:

1. Restore Backed Up database
2. Archive Customer defined databases
3. Install Archived database
4. Review Upgrade Information
5. Clear Upgrade Information
6. Undo Installation
7. Flash Boot ROM Utilities
8. Current Installation Summary

[q]uit, <cr>current menu, [m]ain, [p]revious menu,

Enter Selection:

7<cr>

7 Select an option from the Flash Boot ROM Utilities menu.

Flash Boot ROM Utilities Menu:

1. List Flash Boot ROM
2. Upgrade Flash Boot ROM
3. Restore Flash Boot ROM

[q]uit, <cr>current menu, [m]ain, [p]revious menu,

Enter Selection:

1<cr>(List Flash)

2<cr>(Upgrade Flash Boot ROM)

3<cr>(Restore Flash Boot ROM)

If response was **1<cr>** go to Step 8

If response was **2<cr>** go to Step 9

If response was **3<cr>** go to Step 10

8 Review the Flash Boot ROM summary.

The following information is displayed when the 'List Flash Boot ROM' utility is selected in Step 7.

- the version of the active Flash Boot ROM
- the version of the backup Flash Boot ROM (if it exists)
- the version of the Flash Boot ROM residing on the Software Delivery (PCMCIA) card (if it exists)

The following are four examples of what might be displayed on the screen.

Note: The NTDK34 product code used for the Flash Boot ROM in the following examples is for illustration purposes only. The actual code may be different.

Example 1

The Software Delivery Card (PCMCIA) contains a new version of the Flash Boot ROM. There is also an older backed-up version of the Flash Boot ROM.

Flash Boot ROM Summary:

Active -- NTDK34AA REL 02 (the version which is active)

Backup -- NTDK34AA REL 01 (the previous active version)

Software Delivery Card -- NTDK34AA REL 03 (a newer version)

(Return to Step 7)

Example 2

The Software Delivery Card (PCMCIA) is not installed.

Flash Boot ROM Summary:

Active -- NTDK34AA REL 02 (the version which is active)

Backup -- NTDK34AA REL 01 (the previous active version)

Software Delivery Card -- card not installed (Software Delivery not installed)

(Return to Step 7)

Example 3

There is no Flash Boot ROM on the Software Delivery Card (PCMCIA).

Flash Boot ROM Summary:

Active -- NTDK34AA REL 02 (the version which is active)

Backup -- NTDK34AA REL 01 (the previous active version)

Software Delivery Card -- no Flash Boot ROM on card (no Flash Boot ROM on Software Delivery card)

(Return to Step 7)

Example 4

The Software Delivery Card (PCMCIA) has the same version as the current active Flash Boot ROM.

Flash Boot ROM Summary:

Active -- NTDK34AA REL 03 (the version which is active)

Backup -- NTDK34AA REL 02 (the previous active version)

Software Delivery Card -- NTDK34AA REL 03 (same version as on Software Delivery)

(Return to Step 7)

9 Perform or terminate Flash Boot ROM upgrade.

Upgrading Active Boot ROM to NTDK34AA REL 03

System Restart required to activate Flash Boot ROM upgrade.

*** WARNING *** A system restart will be invoked as part of the Flash Boot ROM Upgrade.

Are you sure you wish to perform the Flash Boot Upgrade?

n<cr> (no)

y<cr> (yes)

If response was **y<cr>** — End —

If response was **n<cr>** go to Step 5

10 Perform or terminate Flash Boot ROM restore.

Restoring Flash Boot ROM to NTDK34AA REL 01

System Restart required to activate restored Flash Boot ROM.

*** WARNING *** A system restart will be invoked as part of the Flash Boot ROM Restore.

Are you sure you wish to perform the Flash Boot Restore?

n<cr> (no)

y<cr> (yes)

If response was **y<cr>** go to — End —

If response was **n<cr>** go to Step 5

End of Procedure

Installation summary

Introduction

This section describes how to obtain an installation summary using the Utilities menu.

How to use the Installation Summary utility

Summary of steps

The steps to follow to obtain an installation summary are summarized in the following list. They consist of:

- Selecting the Utilities function.
- Selecting Current Installation Summary utility.

Using the Installation Summary Utility

The following procedure describes how to use the Current Installation Summary utility.

Procedure 76

Using Current Installation Summary Utility

- 1 Invoke the Software Installation Program using Overlay 143.

Login to the system by entering **LOGI<cr>** then the password in response to **PASS?**.

Note: The response to **PASS?** is unique to each system.

Once logged in, enter:

LD 143<cr>

UPGRADE<cr>

If

SOFTWARE INSTALLATION PROGRAM

message appears go to Step 2

If

SOFTWARE INSTALLATION PROGRAM

message does not appear repeat Step 1 (this step) and make sure correct information is entered

2 Select Utilities from the Main Menu.

```
SOFTWARE INSTALLATION PROGRAM
*****
Verify Security ID: 12345678
*****
```

Software Installation Main Menu

1. New System Installation - From Software Daughterboard
 2. System Upgrade
 3. Utilities
 4. New System Installation - From Software Delivery Card
- [q]uit, [h]elp or [?], <cr> - redisplay

Enter Selection:

3<cr>

3 Select item 7 from the Utilities Menu.

Utilities Menu:

1. Restore Backed Up database
2. Archive Customer defined databases
3. Install Archived database
4. Review Upgrade Information
5. Clear Upgrade Information
6. Undo Installation
7. Flash Boot ROM Utilities
8. Current Installation Summary

[q]uit, <cr>current menu, [m]ain, [p]revious menu,

Enter Selection:

8<cr>

4 Review the Installation summary.

The following is an example of what might be displayed on the screen.

```
Security ID      : 20000132
Aux ID          : 20000132
Feature Set     : Inter-Office Communications
Additional Pkgs : none
Database        : Inter-Office Communications
                  OLD      NEW
S/W Release     : 0100    0100
ISM Parameters  : OLD      NEW
                  TSN      : 0048    0064
                  AGNT     : 0128    0128
                  ACDN     : 0       0
                  AST      : 0       0
                  DSL      : 0       0
                  LTID     : 0       0
                  MOPT     : 0       0
```

Press Enter to Continue.

End of Procedure

Chapter 22 – Pre-programmed Data

Introduction

When a Meridian 1 Option 11C Compact system is initially installed, customer data must be entered into the system software. Telephones, for example, must be assigned features on their keys to allow them to function properly.

However, the Software Daughterboard can be pre-programmed with the customer data. If pre-programmed data is loaded into the system during the Installation programs, some overlay entries will be automatically configured on the telephones. For example, you can choose a telephone model that has predetermined feature and key assignments and a preassigned class of service. This can be a significant time-saver if numerous types of telephone models must be assigned.

Pre-programmed data is not mandatory for software installation. In fact, the Software Daughterboard can be programmed with the minimum number of files to allow the system to operate.

See “Chapter 17 – Connecting the telephones and attendant console” on page 147 for information about connecting and activating telephones.

Passwords and codes

[Table 1](#) lists the various passwords and codes that are used when working with pre-programmed data.

Table 1
Passwords and codes

Function	Code or extension(s)
TTY password (For access to TTY Option 11C Compact overlays)	0000
Meridian Mail administration password	adminpwd
Administration telephone FFC	*41
SPRE code	1
Telephone relocation Flexible Feature Code	*40
Telephone Removal Flexible Feature Code	*42
Telephone relocation password (SCRD)	1234

Default numbering plan

The default numbering plan for Option 11C Compact is based on the following guidelines:

- The default numbering plan uses four digits and starts at 2200.
- The prime extension number (DN) for each telephone is in the range 2200-2XXX. The value of “XXX” varies depending on the number of telephones in the system. Any secondary extension numbers use numbers outside this range. This arrangement allows the system to automatically configure telephones and corresponding mailboxes without manual intervention.
- Meridian Mail uses extension 7000 for access, 7001 for Auto Attendant, 7002 for Express Messaging, and 7003 for Prompt Maintenance.
- Meridian Mail Virtual Agents are pre-configured for Card 10 in Unit 0, 1, 2, 8, 9, and 10 of the main cabinet.
- The Central Answering Position has an extension of 7700. This extension can be changed in LD 15.

First digits

[Table 2](#) shows the default numbering plan for the first digit.

Table 2
Default numbering plan—First digit

First digit	Pre-programmed use for digit
1	SPRE code
2	Not used
3	Not used
4	Not used
5	Not used
6	Not used
7	COT/TIE/DID/WATS/FEX/RAN/MUS/AWR/Paging Trunk access codes, Meridian Mail queues and attendant DN, Call park DNs
8	Not used
9	Not used
0	Attendant extension

Note: The first number of the default numbering plan is pre-programmed as 2200. The remaining numbers in the default numbering plan are designated in software, but do not become active until they are selected during the telephone activation procedure.

The digit “7” in the default numbering plan is programmed with many system features to assist in configuring the system. It automatically configures user mail boxes to correspond with the 2200 numbering plan. In addition, the pre-programmed Meridian Mail queues in the Meridian Mail software match the default data on the system.

Key Directory Numbers numbers

[Table 3](#) lists the key Directory Numbers (DN) and their function that are assigned by the default numbering plan.

Table 3
Default numbering plan—key DNs

DN	Function
0	Attendant extension
2200	First number in numbering plan
7700 (Note)	Night number
7700 (Note)	Queue for Central Answering Position
7750 (Note)	General ACD queue
7000-7009	Meridian Mail miscellaneous ACD queues:
7000	Meridian Mail extension
7001	Auto attendant extension
7002	Express messaging
7003	Prompt maintenance
7004-7009	Miscellaneous queues
7800-7811	Meridian Mail position I.D.
7830-7841	Meridian Mail agent extensions
7900-7919	Call park extensions

Note: The thresholds which control the agent AWC keys have been set as follows:

CWTH 1, CWLF 2, CWLW 4

Directory Numbers (DN) assigned to card slots

[Tables 4](#) and [5](#) show the relationship between slots, cards and DNs.

Table 4
Main cabinet

Slot Number	Card Number	Card Type	Available DNs
1 & 2	1	NTMW05	2200 through 2223
		NTMW06	2200 through 2215
		NTMW07	Trunk
	2	NTMW07 Note	2224 through 2227
3 & 4	3	NTMW05	2248 through 2271
		NTMW06	2248 through 2263
		NTMW07	Trunk
	4	NTMW07 Note	2272 through 2275
5 & 6	5	NTMW05	2296 through 2319
		NTMW06	2296 through 2311
		NTMW07	Trunk
	6	NTMW07 Note	2320 through 2323
7	7	NTMW05	2344 through 2367
		NTMW06	2344 through 2359
8	8	NTMW05	2368 through 2391
		NTMW06	2368 through 2383
9	9	NTMW05	2392 through 2415
		NTMW06	2392 through 2407
10	10	Voice Mail	2416 through 2439 (these DNs are not available)
Note: Card Numbers 2, 4 and 6 can only be used for analog line assignments.			

Table 5
Expansion cabinet

Slot Number	Card Number	Card Type	Available DNs
11 & 12	11	NTMW05	2440 through 2463
		NTMW06	2440 through 2455
		NTMW07	Trunk
	12	NTMW07 Note	2464 through 2467
13 & 14	13	NTMW05	2488 through 2511
		NTMW06	2488 through 2503
		NTMW07	Trunk
	14	NTMW07 Note	2512 through 2215
15 & 16	15	NTMW05	2536 through 2559
		NTMW06	2536 through 2551
		NTMW07	Trunk
	16	NTMW07 Note	2560 through 2563
17	17	NTMW05	2584 through 2607
		NTMW06	2584 through 2599
18	18	NTMW05	2608 through 2631
		NTMW06	2608 through 2623
19	19	NTMW05	2632 through 2655
		NTMW06	2632 through 2647
20	—	Fiber Receiver Card	2656 through 2679 (These DNs are not available)
Note: Card Numbers 12, 14 and 16 can only be used for analog line assignments.			

Flexible Feature Codes

Flexible Feature Code (FFC) is used in many administrative procedures. [Table 6](#) lists the FFC prompts, their definition and code.

Table 6
Flexible Feature Codes

FFC Prompt	Definition	FFC Code
ASRC	Automatic Set Relocation	*40
AREM	Automatic Set Removal Code	*42
ADMN	Administration Set Access Code	*41
CFWA	Call Forward All Calls Activate	#1
CFWD	Call Forward All Calls Deactivate	#1
C6DS	6 Party Conference Code	*70
HOLD	Permanent Call Hold	#4
MNTC	Maintenance Access Code	*43
PUGR	Pick-up Group Code	*71
RDLN	Last Number Re-dial	*72
RDST	Store Last Number Re-dial	*73
RGAA	Ring Again Activate	*74
RGAD	Ring Again Deactivate	*75
RGAV	Ring Again Verify	*77
SPCC	Speed Call Controller Code	#2/*80
SPCU	Speed Call User Code	#3/*81
SSPU	System Speed Call User Code	*89

SDI ports

The minimum system port configuration is three SDI ports, all of which are on the NTMW01 SSC card.

An additional SDI port is located on the Fiber Receiver card on systems equipped with an expansion cabinet.

The default SDI port configuration is shown in [Table 7](#). The value for “XX” is set on the faceplate of the SSC card.

Table 7
Pre-configured SDI ports

TTY Number	Card	Port	Use	Configuration
0	0	0	MTC/SCH/BUG	XX/8/1/NONE
1	0	1	MTC/SCH/BUG	1200/8/1/NONE
2	0	2	MTC/SCH/BUG	1200/8/1/NONE

Administration and maintenance terminal port

Ports 1 and 2 are pre-configured as maintenance ports.

Modem port

The pre-configured modem port allows the remote maintenance modem to be connected with further system programming. This port is pre-configured as TTY 0 (port 0) and is programmed for Maintenance (MTC), Service Change (SCH), Traffic (TRF), and BUG messages.

Table 8
ESDI Settings

Setting	Code
BPS	4800
CLOK	EXT
IADR	003
RADR	001
T1	10
T2	002
T3	040
N1	128
N2	08
K	7
RXMT	05
CRC	10
ORUR	005
ABOR	005
USER	CMS
ENL	NO

Telephone tones

The telephone tones in North America are as follows:

- Dial tone — A continuous tone.
- Special dial tone — Three beeps followed by continuous dial tone.
- Overflow tone— Similar to a busy tone, except faster and higher.
- Relocation tone — A short high-pitched beep lasting for 4 seconds, followed by silence.

Trunks

Trunk routes

[Table 9](#) shows pre-programmed trunk route information that you need on hand to activate and modify trunks.

Table 9
Pre-programmed trunk route information

Route	Type	Access Code	Mode	Interface
00 *	COT	7100	IAO	-
01 *	COT	7101	ICT	-
02 *	COT	7102	OGT	-
03	TIE	7103	IAO	-
04	TIE	7104	ICT	-
05	TIE	7105	OGT	-
06	DID	7106	ICT	-
07	WAT	7107	IAO	-
08	WAT	7108	ICT	-
09	WAT	7109	OGT	-
40	MUS	7140	OGT	-
41	—	7141	—	AUD
42	RAN	7142	—	DGT
43	RAN	7143	—	AUD
44	PAG	7144	OGT	-
50	FEX	7150	IAO	-
51	FEX	7151	ICT	-
52	FEX	7152	OGT	-

Note: Trunk routes marked with an asterisk (*) are configured support Call Detail Recording (CDR) output. The CDR is pre-configured as follows:

CDR YES, INC YES, OAL YES, AIA YES

Trunk models

Table 10 lists trunk characteristics according to trunk type and model number.

Note: All trunks are programmed as immediate start / supervision = yes, with the exception of trunks with an asterisk beside them (*). Trunks marked with an asterisk (*) are set for wink start / supervision = yes.

Table 10
Trunk model information

Trunk Type	Model Number	Signaling Mode	DIP or DTN	BIMP and TIMP
COT	1	GRD	DIP	3COM/600
	2	LOP	DIP	3COM/600
	3	GRD	DTN	3COM/600
	4	LOP	DTN	3COM/600
	5	GRD	DIP	3COM/900
	6	LOP	DIP	3COM/900
	7	GRD	DTN	3COM/900
	8	LOP	DTN	3COM/900
TIE	1	OAD	DIP	3COM/600
	2	LDR	DIP	3COM/600
	3	OAD	DTN	3COM/600
	4	LDR	DTN	3COM/600
	5	OAD	DIP	3COM/900
	6	LDR	DIP	3COM/900
	7	OAD	DTN	3COM/900

— Continued —

Table 10
Trunk model information

Trunk Type	Model Number	Signaling Mode	DIP or DTN	BIMP and TIMP
	8	LDR	DTN	3COM/900
	16	EAM	DIP	- /600
	17	EM4	DIP	-
	18	EAM	DTN	-
	19	EM4	DIP	- /600
DID	1	LDR (Wink Start Supv =Yes)	DIP	3COM/600
	2	LDR (Wink Start Supv =Yes)	DTN	3COM/600
	3	LDR (Wink Start Supv =Yes)	DIP	3COM/900
	4	LDR (Wink Start Supv =Yes)	DTN	3COM/900
	5	LDR (Wink Start Supv =Yes)	DIP	3COM/600
	6	LDR (Wink Start Supv =Yes)	DTN	3COM/600
	7	LDR (Wink Start Supv =Yes)	DIP	3COM/900

— Continued —

Table 10
Trunk model information

Trunk Type	Model Number	Signaling Mode	DIP or DTN	BIMP and TIMP
	8	LDR (Wink Start Supv =Yes)	DTN	3COM/900
WAT	1	GRD	DIP	3COM/600
	2	LOP	DIP	3COM/600
	3	GRD	DTN	3COM/600
	4	LOP	DTN	3COM/600
	5	GRD	DIP	3COM/900
	6	LOP	DIP	3COM/900
	7	GRD	DTN	3COM/900
	8	LOP	DTN	3COM/900
MUS	1			3COM/600
RAN	1			600/1200
PAG	1	LDR	DIP	3COM/600
	2	OAD	DIP	3COM/600
	3	LDR	DTN	3COM/600
	4	OAD	DTN	3COM/600
	5	LDR	DIP	3COM/900
	6	OAD	DIP	3COM/900
	7	LDR	DTN	3COM/900

— Continued —

Table 10
Trunk model information

Trunk Type	Model Number	Signaling Mode	DIP or DTN	BIMP and TIMP
	8	OAD	DTN	3COM/900
	16	EAM	DIP	- /600
	17	EM4	DIP	-
	18	EAM	DTN	- /600
	19	EM4	DTN	- /600
FEX	1	GRD	DIP	3COM/600
	2	LOP	DIP	3COM/600
	3	GRD	DTN	3COM/600
	4	LOP	DTN	3COM/600
	5	GRD	DIP	3COM/900
	6	LOP	DIP	3COM/900
	7	GRD	DTN	3COM/900
	8	LOP	DTN	3COM/900

Telephones

Telephone Models

Telephone Models are organized into the following groups according to their anticipated function:

Administration telephones

- **M2008**
 - [“Administration \(maintenance\) telephone” on page 361](#)
- **M2616**
 - [“Administration \(maintenance\) telephone” on page 362](#)

CAP telephones

- **M2616**
 - [“Central Answering Position telephone” on page 363](#)
- **M2216**
 - [“Central Answering Position telephone” on page 363](#)

General Business telephones

- **Analog (500/2500 type) telephones**
 - [“Support staff telephone toll allowed” on page 364](#)
 - [“Support staff telephone with message indication lamp, toll denied” on page 364](#)
 - [“Support staff telephone with message indication lamp, toll allowed” on page 365](#)
 - [“Courtesy telephone” on page 365](#)
- **M2006**
 - [“General business telephone with message indication and speed call” on page 365](#)
 - [“General business telephone with message indication and speed call, toll denied” on page 366](#)

- **M2008**
 - [“General business telephone with message indication” on page 367](#)
 - [“General business set with message indication and display” on page 368](#)
 - [“Two-line general business telephone with message indication and display” on page 368](#)
 - [“Manager telephone with display and message indication” on page 369](#)
- **M2616**
 - [“Secretary telephone with display and message indication” on page 370](#)
 - [“Advanced business telephone with message indication and display” on page 371](#)
 - [“Manager telephone with message indication and display” on page 372](#)
- **M2216**
 - [“ACD agent with display” on page 373](#)
 - [“ACD supervisor with display” on page 374](#)

In this chapter, model numbers for each telephone type are provided, followed by tables that show the key number and position on the telephone as well as the feature assigned to each key.

[Tables 11, 12 and 13](#) show the acronyms for Class of Service options that appear for each model.

Table 11**Class of service options - analog telephones**

Prompt	Meaning
TLD	Toll Denied
HTA	Hunting Allowed
LNA	Last Number Redial Allowed
FNA	Call Forward No Answer Allowed
PUA	Pickup Allowed
XRA	Ring Again Allowed
MWA	Message Waiting Allowed

Table 12**Class of Service options - digital telephones**

Prompt	Meaning
TLD	Toll Denied
AAD	Automatic Answerback Denied
ADD	Automatic Digit Display
HTA	Hunting Allowed
LNA	Last Number Redial Allowed
FNA	Call Forward No Answer Allowed
PUA	Pickup Allowed
XRA	Ring Again Allowed
MWA	Message Waiting Allowed

Table 13
Class of Service Options - ACD telephones

Prompt	Meaning
UNR	Unrestricted
ADD	Digit Display
AO	Observation of Supervisor Allowed
FBA	Call Forward Busy Allowed
FNA	Call Forward No Answer Allowed
AGT	Agent
CNDA	Call Party Name Display Allowed
PDN	Prime DN used for CLID
CNIA	Call Number Information Allowed
ENG	English Language for Display
DNDA	Dialed Name Display Allow

Administration telephones

M2008 telephone

The following is a description of each model that can be assigned to M2008 telephones.

M2008 model 99

- Intended use:
 - Administration (maintenance) telephone
- Assigned Class of Service options:
 - MTA/ADD/LNA/FNA/GPUA/MWA/FBD
- Key assignments
 - See [Table 14](#)

Table 14

M2008 model 99 key assignments

Key Number and Position	Feature
7	(blank)
6	Message
5	Transfer
4	Speed Call (personnel: 99)
3	Forward
2	Conference
1	DN
0	DN

M2616 telephone

The following is a description of each model that can be assigned to M2616 telephones.

M2616 model 99

- Intended use:
 - Administration (maintenance) telephone
- Assigned Class of Service options:
 - MTA/LNA/FNA/GPUA/MWA/ADD//HFA/FBD
- Key assignments
 - See [Table 15](#)

Table 15
M2616 model 99 key assignments

Feature	Key Number and Position		Feature
(blank)	15	7	(blank)
Auto Dial	14	6	Message
Auto Dial	13	5	Transfer
Auto Dial	12	4	Ring Again
Auto Dial	11	3	Forward
Auto Dial	10	2	Conference
Auto Dial	9	1	DN
Speed Call (personnel: 99)	8	0	DN

Central Answering Position (CAP) telephones

The following is a description of each model that can be assigned to M2616 and M2216 telephones.

M2616 and M2216 CAP telephone model 60

- Intended use:
 - Central Answering Position telephone
- Assigned Class of Service options:
 - LNA/FND/GPUA/MWA/ADD/HFD/AGN/FBD/SPV
- Key assignments
 - See [Table 16](#)

Table 16
M2616 and M2216 key assignments

Feature	Key Number and Position		Feature
Hot *	15	7	(blank)
Make Set Busy	14	6	DN
Display Waiting Calls	13	5	Park
Auto Dial	12	4	Override
Auto Dial	11	3	Add
Auto Dial	10	2	Consult/Join
Auto Dial	9	1	Extend
Auto Dial	8	0	ACD Queue (7700)

* This key is used as a Hotline to connect to the office paging system. Assign it with the paging route access code and define it when you activate the telephone.

Note: An ACD character display is required with the M2616 CAP. In the system software, the Extend key is actually called a Transfer key, the Consult/Join key is called a Conference key, and the Add key is called a No Hold Conference key.

General business telephones

500- and 2500-type telephones

The following is a description of each model that can be assigned to 500- (rotary dial) and 2500- (dial pad) type telephones.

Note: When activating a 500-type telephone, a 2500-type telephone is required to define the features. Once the features are defined, unplug the 2500-type telephone and replace it with the 500-type telephone.

500- and 2500-type telephones model 21

- Type of telephone:
 - Support staff telephone toll allowed
- Intended use:
 - Business telephone
- Assigned Class of Service options:
 - UNR/C6A/CFXD/DTN/FND/GPUA/LNA/XFA/XRA/FBD

500- and 2500-type telephones model 22

- Type of telephone:
 - Support staff telephone with message indication lamp, toll denied
- Intended use:
 - Business telephone
- Assigned Class of Service options:
 - MWA/TLD/C6A/CFXD/DTN/FNA/GPU/LNA/XFA/XRA/FBD/
LPA

500- and 2500-type telephones model 23

- Type of telephone:
 - Support staff telephone with message indication lamp, toll allowed
- Intended use:
 - Business telephone
- Assigned Class of Service options:
 - MWA/UNR/C6A/CFXD/DTN/FNA/GPU/LNA/XFA/XRA/FBD/LPA

500- and 2500-type telephones model 26

- Type of telephone:
 - Courtesy telephone
- Intended use:
 - House telephone
- Assigned Class of Service options:
 - MNL/TLD

M2006 telephone models

The following is a description of each model that can be assigned to M2006 telephones.

M2006 model 22

- Intended use:
 - General business telephone with message indication and speed call
- Assigned Class of Service options:
 - FNA/GPUA/LNA/MWA/FBD/UNR
- Key assignments
 - See [Table 17](#)

Table 17
M2006 model 22 key assignments

Key Number and Position	Feature
5	Message
4	Speed Call
3	Pick-Up
2	Forward
1	Conference
0	DN

M2006 model 25

- Intended use:
 - General business telephone with message indication and speed call, toll denied
- Assigned Class of Service options:
 - FNA/GPUA/LNA/MWA/FBD/TLD
- Key assignments
 - See [Table 18](#)

Table 18
M2006 model 25 key assignments

Key Number and Position	Feature
5	Message
4	Speed Call
3	Pick-Up
2	Forward
1	Conference
0	DN

M2008 telephone models

The following is a description of each model that can be assigned to M2008 telephones.

M2008 model 21

- Intended use:
 - General business telephone with message indication
- Assigned Class of Service options:
 - FNA/GPUA/LNA/MWA/NDD/FBD
- Key assignments
 - See [Table 19](#)

Table 19**M2008 model 21 key assignments**

Key Number and Position	Feature
7	Auto Dial
6	Message
5	Transfer
4	Ring Again
3	Pick-Up
2	Forward
1	Conference
0	DN

M2008 model 23

- Intended use:
 - General business set with message indication and display
- Assigned Class of Service options:
 - FNA/GPUA/LNA/MWA/ADD/FBD
- Key assignments
 - See [Table 20](#)

Table 20
M2008 model 23 key assignments

Key Number and Position	Feature
7	Program
6	Message
5	Transfer
4	Ring Again
3	Pick-Up
2	Forward
1	Conference
0	DN

M2008 model 27

- Intended use:
 - Two-line general business telephone with message indication and display
- Assigned Class of Service options:
 - FNA/GPUA/LNA/MWA/ADD/FBD
- Key assignments
 - See [Table 21](#)

Table 21
M2008 model 27 key assignments

Key Number and Position	Feature
7	Program
6	Message
5	Transfer
4	Pick-Up
3	Forward
2	Conference
1	DN
0	DN

M2008 model 33

- Intended use:
 - Manager telephone with display and message indication
- Assigned Class of Service options:
 - FNA/GPUA/LNA/MWA/ADD/FBD
- Key assignments
 - See [Table 22](#)

Table 22
M2008 model 33 key assignments

Key Number and Position	Feature
7	Program
6	Message
5	Voice Call
4	Speed Call (personnel: 20)
3	Forward
2	Conference
1	DN
0	DN

M2616 telephone models

The following is a description of each model that can be assigned to M2616 telephones.

M2616 model 21

- Intended use:
 - Secretary telephone with display and message indication
- Assigned Class of Service options:
 - LNA/FNA/GPUA/MWA/ADD/HFD/FBD
- Key assignments
 - See [Table 23](#)

Table 23
M2616 model 21 key assignments

Feature	Key Number and Position		Feature
Auto Dial	15	7	Program
Auto Dial	14	6	Message
Auto Dial	13	5	Ring Again
Auto Dial	12	4	Speed Call (personnel: 20)
Auto Dial	11	3	Forward
Auto Dial	10	2	Conference
Auto Dial	9	1	DN
Transfer	8	0	DN

M2616 model 25

- Intended use:
 - Advanced business telephone with message indication and display
- Assigned Class of Service options:
 - LNA/FNA/GPUA/MWA/ADD/HFA/FBD
- Key assignments
 - See [Table 24](#)

Table 24
M2616 model 25 key layout

Feature	Key Number and Position		Feature
Handsfree	15	7	Program
Auto Dial	14	6	Message
Auto Dial	13	5	Ring Again
Auto Dial	12	4	Pick-Up
Auto Dial	11	3	Forward
Auto Dial	10	2	Conference
Transfer	9	1	DN
Speed Call	8	0	DN

M2616 model 33

- Intended use:
 - Manager telephone with message indication and display
- Assigned Class of Service options:
 - LNA/FNA/GPUA/MWA/ADD/HFA/FBD
- Key assignments
 - See [Table 25](#)

Table 25
M2616 model 33 key assignments

Feature	Key Number and Position		Feature
Handsfree	15	7	Program
Auto Dial	14	6	Message
Auto Dial	13	5	Ring Again
Auto Dial	12	4	Pick-Up
Auto Dial	11	3	Forward
Voice Call	10	2	Conference
Transfer	9	1	DN
Speed Call (personnel: 20)	8	0	DN

M2216 telephone models

The following is a description of each model that can be assigned to M2216 telephones.

M2216 model 20

- Intended use:
 - 1** ACD agent with display
- Assigned Class of Service options:
 - LNA/FND/GPUA/MWA/ADD/AGN/FBD
- Key assignments
 - See [Table 26](#)

Table 26
M2216 model 20 key assignments

Feature	Key Number and Position		Feature
Auto Dial	15	7	Program
Auto Dial	14	6	Transfer
Auto Dial	13	5	Speed Call
Auto Dial	12	4	Forward
Auto Dial	11	3	Conference
Auto Dial	10	2	Make Set Busy
ACD calls waiting	9	1	Not Ready
DN	8	0	ACD DN (7750)

M2216 model 30

- Intended use:
 - ACD supervisor with display
- Assigned Class of Service options:
 - LNA/FND/GPUA/MWA/ADD/SPV/FBD
- Key assignments
 - See [Table 25](#)

Table 27
M2216 model 30 key assignments

Feature	Key Number and Position		Feature
Auto Dial	15	7	Program
Auto Dial	14	6	Transfer
Auto Dial	13	5	Speed Call
Auto Dial	12	4	Forward
Auto Dial	11	3	Conference
Display Agents	10	2	Make Set Busy
Display Queue	9	1	Not Ready
DN	8	0	ACD DN (7750)

Chapter 23 – Changing pre-programmed data

Introduction

The pre-programmed data on the Meridian 1 Option 11C Compact system provides an effective starting point for programming the system's telephone and trunking information.

This chapter describes how to change the default numbering plan. It may be necessary to change the numbering plan for one or more of the following reasons:

- to change the first number in the numbering plan
- to shift the start of the numbering plan to another card slot
- the default numbering plan interferes with the system data

In addition to making changes to the default numbering plan, this section provides information about modifying telephone model and trunk programming stored in Option 11C Compact pre-programmed data.

Changing the default numbering plan

Extensions assigned differ from the default numbering plan

Compare the first digits assigned to this system with the default numbering plan as shown in the Table 2, “Default numbering plan—First digit,” on page 345 of Chapter 22 – Pre-programmed Data.

- If the first digit is in the unused range, change the first number in the default numbering plan. To do this, follow the instructions in the section of this Chapter called [“Changing the first number in the numbering plan” on page 376](#).
- If the first digit is being used by Meridian Mail, trunk routes, or other data, follow the instructions in the section called [“Removing numbering plan interferences” on page 397](#).

Changing the first number in the numbering plan

Follow the instructions in [Procedure 77](#) to change the first number of the numbering plan.

Procedure 77

Changing the first number

- 1 Lift the handset of the administration telephone.
- 2 Enter the administration Flexible Feature Code. (See “Passwords and codes” on page 344.)
- 3 Enter the administration telephone password. (See “Passwords and codes” on page 344.)

Special dial tone is heard and the prompt
“TASK?”
appears on the top line of the character display.
- 4 Press the asterisk (*) three times.

The second line of the character display reads
“4 INSTALLATION OPTIONS”.
- 5 Select “4 INSTALLATION OPTIONS” by entering the number “4”.

The character display reads
1 DEFAULT SETS
2 NUMBERING PLAN

- 6 Select “2 NUMBERING PLAN” by entering the number “2”.
The character display reads
FIRST NUMBER (XXXX)?
- 7 To create a new first number, enter the digits of the new first number and press the pound key.

The number entered as the first number in the numbering plan is assigned to slot number one, unit zero of the main cabinet. The default numbers assigned to the remaining card and unit combinations are consecutive in the Option 11C Compact system assuming that each slot consists of up to 24 units.

End of Procedure

Changing the assignment of the first DN

The first directory number (DN) in the default numbering plan is DN 2200 and is assigned to card 1, unit 0 (TN). [Table 35](#) and [Table 36](#) show the default DN to card and unit assignments in the main and expansion cabinets.

The DN to TN assignment can be moved forward in increments of 24 by changing the First DN assignment as follows:

- To assign DN 2200 to card 1 unit 0, define the First DN as 2200 (default). The resulting DN to TN assignments are shown in [Tables 35](#) and [36](#).
- To assign DN 2200 to card 2 unit 0, define the First DN as 2176. The resulting DN to TN assignments are shown in [Tables 37](#) and [38](#).
- To assign DN 2200 to card 3 unit 0, define the First DN as 2152. The resulting DN to TN assignments are shown in [Tables 39](#) and [40](#).
- To assign DN 2200 to card 4 unit 0, define the First DN as 2128. The resulting DN to TN assignments are shown in [Tables 41](#) and [42](#).
- To assign DN 2200 to card 5 unit 0, define the First DN as 2104. The resulting DN to TN assignments are shown in [Tables 43](#) and [44](#).
- To assign DN 2200 to card 6 unit 0, define the First DN as 2080. The resulting DN to TN assignments are shown in [Tables 45](#) and [46](#).
- To assign DN 2200 to card 7 unit 0, define the First DN as 2056. The resulting DN to TN assignments are shown in [Tables 47](#) and [48](#).

- To assign DN 2200 to card 8 unit 0, define the First DN as 2032. The resulting DN to TN assignments are shown in [Tables 49](#) and [50](#).
- To assign DN 2200 to card 9 unit 0, define the First DN as 2008. The resulting DN to TN assignments are shown in [Tables 51](#) and [52](#).

[Procedure 78](#) describes how to change assignment of the first number in the numbering plan to card slot.

Procedure 78
Changing DN card assignment

- 1 Refer to [Tables 35](#) through [Tables 52](#) and determine the First DN assignment.

Example:

To assign DN 2200 to card 5 unit 0, refer to [Table 43](#) and determine the First DN assignment (2104 in this example).

- 2 Enter the First DN in response to the prompt

“FIRST NUMBER (XXXX)?”

on the administration telephone menu.

DN 2200 is shifted to the appropriate slot (card 5 unit 0 in this example) and the remaining DN assignments are adjusted as shown in [Tables 43](#) and [44](#).

End of Procedure

Table 35
Main cabinet DN assignments — DN 2200 on Card 1 Unit 0 (default assignment)

Card	Unit	Directory Number (DN)							
		Assign 2200 as First DN (Default)							
1	0 - 7	2200	2201	2202	2203	2204	2205	2206	2207
	8 - 15	2208	2209	2210	2211	2212	2213	2214	2215
	16 - 23	2216	2217	2218	2219	2220	2221	2222	2223
2	0 - 3	2224	2225	2226	2227				
3	0 - 7	2248	2249	2250	2251	2252	2253	2254	2255
	8 - 15	2256	2257	2258	2259	2260	2261	2262	2263
	16 - 23	2264	2265	2266	2267	2268	2269	2270	2271
4	0 - 3	2272	2273	2274	2275				
5	0 - 7	2296	2297	2298	2299	2300	2301	2302	2303
	8 - 15	2304	2305	2306	2307	2308	2309	2310	2311
	16 - 23	2312	2313	2314	2315	2316	2317	2318	2319
6	0 - 3	2320	2321	2322	2323				
7	0 - 7	2344	2345	2346	2347	2348	2349	2350	2351
	8 - 15	2352	2353	2354	2355	2356	2357	2358	2359
	16 - 23	2360	2361	2362	2363	2364	2365	2366	2367
8	0 - 7	2368	2369	2370	2371	2372	2373	2374	2375
	8 - 15	2376	2377	2378	2379	2380	2381	2382	2383
	16 - 23	2384	2385	2386	2387	2388	2389	2390	2391
9	0 - 7	2392	2393	2394	2395	2396	2397	2398	2399
	8 - 15	2400	2401	2402	2403	2404	2405	2406	2407
	16 - 23	2408	2409	2410	2411	2412	2413	2414	2415

Table 36

Expansion cabinet DN assignments — DN 2200 on Card 1 Unit 0

Card	Unit	Default Directory Number (DN)							
11	0 - 7	2440	2441	2442	2443	2444	2445	2446	2447
	8 - 15	2448	2449	2450	2451	2452	2453	2454	2455
	16 - 23	2456	2457	2458	2459	2460	2461	2462	2463
12	0 - 3	2464	2465	2466	2467				
13	0 - 7	2488	2489	2490	2491	2492	2493	2494	2495
	8 - 15	2496	2497	2498	2499	2500	2501	2502	2503
	16 - 23	2504	2505	2506	2507	2508	2509	2510	2511
14	0 - 3	2512	2513	2514	2515				
15	0 - 7	2536	2537	2538	2539	2540	2541	2542	2543
	8 - 15	2544	2545	2546	2547	2548	2549	2550	2551
	16 - 23	2552	2553	2554	2555	2556	2557	2558	2559
16	0 - 3	2560	2561	2562	2563				
17	0 - 7	2584	2585	2586	2587	2588	2589	2590	2591
	8 - 15	2592	2593	2594	2595	2596	2597	2598	2599
	16 - 23	2600	2601	2602	2603	2604	2605	2606	2607
18	0 - 7	2608	2609	2610	2611	2612	2613	2614	2615
	8 - 15	2616	2617	2618	2619	2620	2621	2622	2623
	16 - 23	2624	2625	2626	2627	2628	2629	2630	2631
19	0 - 7	2632	2633	2634	2635	2636	2637	2638	2639
	8 - 15	2640	2641	2642	2643	2644	2645	2646	2647
	16 - 23	2648	2649	2650	2651	2652	2653	2654	2655

Table 37
Main cabinet DN assignments — DN 2200 on Card 2 Unit 0

Card	Unit	Directory Number (DN)							
		Assign 2176 as First DN							
2	0 - 3	2200	2201	2202	2203				
3	0 - 7	2224	2225	2226	2227	2228	2229	2230	2231
	8 - 15	2232	2233	2234	2235	2236	2237	2238	2239
	16 - 23	2240	2241	2242	2243	2244	2245	2246	2247
4	0 - 3	2248	2249	2250	2251				
5	0 - 7	2272	2273	2274	2275	2276	2277	2278	2279
	8 - 15	2280	2281	2282	2283	2284	2285	2286	2287
	16 - 23	2288	2289	2290	2291	2292	2293	2294	2295
6	0 - 3	2296	2297	2298	2299				
7	0 - 7	2320	2321	2322	2323	2324	2325	2326	2327
	8 - 15	2328	2329	2330	2331	2332	2333	2334	2335
	16 - 23	2336	2337	2338	2339	2340	2341	2342	2343
8	0 - 7	2344	2345	2346	2347	2348	2349	2350	2351
	8 - 15	2352	2353	2354	2355	2356	2357	2358	2359
	16 - 23	2360	2361	2362	2363	2364	2365	2366	2367
9	0 - 7	2368	2369	2370	2371	2372	2373	2374	2375
	8 - 15	2376	2377	2378	2379	2380	2381	2382	2383
	16 - 23	2384	2385	2386	2387	2388	2389	2390	2391

Table 38
Expansion cabinet DN assignments — DN 2200 on Card 2 Unit 0

Card	Unit	Directory Number (DN)							
11	0 - 7	2416	2417	2418	2419	2420	2421	2422	2423
	8 - 15	2424	2425	2426	2427	2428	2429	2430	2431
	16 - 23	2432	2433	2434	2435	2436	2437	2438	2439
12	0 - 3	2440	2441	2442	2443				
13	0 - 7	2464	2465	2466	2467	2468	2469	2470	2471
	8 - 15	2472	2473	2474	2475	2476	2477	2478	2479
	16 - 23	2480	2481	2482	2483	2484	2485	2486	2487
14	0 - 3	2488	2489	2490	2491				
15	0 - 7	2512	2513	2514	2515	2516	2517	2518	2519
	8 - 15	2520	2521	2522	2523	2524	2525	2526	2527
	16 - 23	2528	2529	2530	2531	2532	2533	2534	2535
16	0 - 3	2536	2537	2538	2539				
17	0 - 7	2560	2561	2562	2563	2564	2565	2566	2567
	8 - 15	2568	2569	2570	2571	2572	2573	2574	2575
	16 - 23	2576	2577	2578	2579	2580	2581	2582	2583
18	0 - 7	2584	2585	2586	2587	2588	2589	2590	2591
	8 - 15	2592	2593	2594	2595	2596	2597	2598	2599
	16 - 23	2600	2601	2602	2603	2604	2605	2606	2607
19	0 - 7	2608	2609	2610	2611	2612	2613	2614	2615
	8 - 15	2616	2617	2618	2619	2620	2621	2622	2623
	16 - 23	2624	2625	2626	2627	2628	2629	2630	2631

Table 39
Main cabinet DN assignments — DN 2200 on Card 3 Unit 0

Card	Unit	Directory Number (DN)							
		Assign 2152 as First DN							
3	0 - 7	2200	2201	2202	2203	2204	2205	2206	2207
	8 - 15	2208	2209	2210	2211	2212	2213	2214	2215
	16 - 23	2216	2217	2218	2219	2220	2221	2222	2223
4	0 - 3	2224	2225	2226	2227				
5	0 - 7	2248	2249	2250	2251	2252	2253	2254	2255
	8 - 15	2256	2257	2258	2259	2260	2261	2262	2263
	16 - 23	2264	2265	2266	2267	2268	2269	2270	2271
6	0 - 3	2272	2273	2274	2275				
7	0 - 7	2296	2297	2298	2299	2300	2301	2302	2303
	8 - 15	2304	2305	2306	2307	2308	2309	2310	2311
	16 - 23	2312	2313	2314	2315	2316	2317	2318	2319
8	0 - 7	2320	2321	2322	2323	2324	2325	2326	2327
	8 - 15	2328	2329	2330	2331	2332	2333	2334	2335
	16 - 23	2336	2337	2338	2339	2340	2341	2342	2343
9	0 - 7	2344	2345	2346	2347	2348	2349	2350	2351
	8 - 15	2352	2353	2354	2355	2356	2357	2358	2359
	16 - 23	2360	2361	2362	2363	2364	2365	2366	2367

Table 40
Expansion cabinet DN assignments — DN 2200 on Card 3 Unit 0

Card	Unit	Default Directory Number (DN)							
11	0 - 7	2416	2417	2418	2419	2420	2421	2422	2423
	8 - 15	2424	2425	2426	2427	2428	2429	2430	2431
	16 - 23	2432	2433	2434	2435	2436	2437	2438	2439
12	0 - 3	2440	2441	2442	2443				
13	0 - 7	2456	2457	2458	2459	2460	2461	2462	2463
	8 - 15	2464	2465	2466	2467	2468	2469	2470	2471
	16 - 23	2472	2473	2474	2475	2476	2477	2478	2479
14	0 - 3	2480	2481	2482	2483				
15	0 - 7	2504	2505	2506	2507	2508	2509	2510	2511
	8 - 15	2512	2513	2514	2515	2516	2517	2518	2519
	16 - 23	2520	2521	2522	2523	2524	2525	2526	2527
16	0 - 3	2528	2529	2530	2531	2532	2533	2534	2535
17	0 - 7	2536	2537	2538	2539	2540	2541	2542	2443
	8 - 15	2544	2545	2546	2547	2548	2549	2550	2551
	16 - 23	2552	2553	2554	2555	2556	2557	2558	2559
18	0 - 7	2560	2561	2562	2563	2564	2565	2566	2567
	8 - 15	2568	2569	2570	2571	2572	2573	2574	2575
	16 - 23	2576	2577	2578	2579	2580	2581	2582	2583
19	0 - 7	2584	2585	2586	2587	2588	2589	2590	2591
	8 - 15	2592	2593	2594	2595	2596	2597	2598	2599
	16 - 23	2600	2601	2602	2603	2604	2605	2606	2607

Table 41
Main cabinet DN assignments — DN 2200 on Card 4 Unit 0

Card	Unit	Directory Number (DN)							
		Assign 2128 as First DN							
4	0 - 3	2200	2201	2202	2203				
5	0 - 7	2224	2225	2226	2227	2228	2229	2230	2231
	8 - 15	2232	2233	2234	2235	2236	2237	2238	2239
	16 - 23	2240	2241	2242	2243	2244	2245	2246	2247
6	0 - 3	2248	2249	2250	2251				
7	0 - 7	2272	2273	2274	2275	2276	2277	2278	2279
	8 - 15	2280	2281	2282	2283	2284	2285	2286	2287
	16 - 23	2288	2289	2290	2291	2292	2293	2294	2295
8	0 - 7	2296	2297	2298	2299	2300	2301	2302	2303
	8 - 15	2304	2305	2306	2307	2308	2309	2310	2311
	16 - 23	2312	2313	2314	2315	2316	2317	2318	2319
9	0 - 7	2320	2321	2322	2323	2324	2325	2326	2327
	8 - 15	2328	2329	2330	2331	2332	2333	2334	2335
	16 - 23	2336	2337	2338	2339	2340	2341	2342	2343

Table 42

Expansion cabinet DN assignments — DN 2200 on Card 4 Unit 0

Card	Unit	Default Directory Number (DN)							
11	0 - 7	2368	2369	2370	2371	2372	2373	2374	2375
	8 - 15	2376	2377	2378	2379	2380	2381	2382	2383
	16 - 23	2384	2385	2386	2387	2388	2389	2390	2391
12	0 - 3	2392	2393	2394	2395				
13	0 - 7	2416	2417	2418	2419	2420	2421	2422	2423
	8 - 15	2424	2425	2426	2427	2428	2429	2430	2431
	16 - 23	2432	2433	2434	2435	2436	2437	2438	2439
14	0 - 3	2440	2441	2442	2443				
15	0 - 7	2464	2465	2466	2467	2468	2469	2470	2471
	8 - 15	2472	2473	2474	2475	2476	2477	2478	2479
	16 - 23	2480	2481	2482	2483	2484	2485	2486	2487
16	0 - 3	2488	2489	2490	2491				
17	0 - 7	2512	2513	2514	2515	2516	2517	2518	2519
	8 - 15	2520	2521	2522	2523	2524	2525	2526	2527
	16 - 23	2528	2529	2530	2531	2532	2533	2534	2535
18	0 - 7	2536	2537	2538	2539	2540	2541	2542	2443
	8 - 15	2544	2545	2546	2547	2548	2549	2550	2551
	16 - 23	2552	2553	2554	2555	2556	2557	2558	2559
19	0 - 7	2560	2561	2562	2563	2564	2565	2566	2567
	8 - 15	2568	2569	2570	2571	2572	2573	2574	2575
	16 - 23	2576	2577	2578	2579	2580	2581	2582	2583

Table 43
Main cabinet DN assignments — DN 2200 on Card 5 Unit 0

Card	Unit	Directory Number (DN)							
		Assign 2104 as First DN							
5	0 - 7	2200	2201	2202	2203	2204	2205	2206	2207
	8 - 15	2208	2209	2210	2211	2212	2213	2214	2215
	16 - 23	2216	2217	2218	2219	2220	2221	2222	2223
6	0 - 3	2224	2225	2226	2227				
7	0 - 7	2248	2249	2250	2251	2252	2253	2254	2255
	8 - 15	2256	2257	2258	2259	2260	2261	2262	2263
	16 - 23	2264	2265	2266	2267	2268	2269	2270	2271
8	0 - 7	2272	2273	2274	2275	2276	2277	2278	2279
	8 - 15	2280	2281	2282	2283	2284	2285	2286	2287
	16 - 23	2288	2289	2290	2291	2292	2293	2294	2295
9	0 - 7	2296	2297	2298	2299	2300	2301	2302	2303
	8 - 15	2304	2305	2306	2307	2308	2309	2310	2311
	16 - 23	2312	2313	2314	2315	2316	2317	2318	2319

Table 44
Expansion cabinet DN assignments — DN 2200 on Card 5 Unit 0

Card	Unit	Default Directory Number (DN)							
11	0 - 7	2344	2345	2346	2347	2348	2349	2350	2351
	8 - 15	2352	2353	2354	2355	2356	2357	2358	2359
	16 - 23	2360	2361	2362	2363	2364	2365	2366	2367
12	0 - 3	2368	2369	2370	2371				
13	0 - 7	2392	2393	2394	2395	2396	2397	2398	2399
	8 - 15	2400	2401	2402	2403	2404	2405	2406	2407
	16 - 23	2408	2409	2410	2411	2412	2413	2414	2415
14	0 - 3	2416	2417	2418	2419				
15	0 - 7	2440	2441	2442	2443	2444	2445	2446	2447
	8 - 15	2448	2449	2450	2451	2452	2453	2454	2455
	16 - 23	2456	2457	2458	2459	2460	2461	2462	2463
16	0 - 3	2464	2465	2466	2467				
17	0 - 7	2488	2489	2490	2491	2492	2493	2494	2495
	8 - 15	2496	2497	2498	2499	2500	2501	2502	2503
	16 - 23	2504	2505	2506	2507	2508	2509	2510	2511
18	0 - 7	2512	2513	2514	2515	2516	2517	2518	2519
	8 - 15	2520	2521	2522	2523	2524	2525	2526	2527
	16 - 23	2528	2529	2530	2531	2532	2533	2534	2535
19	0 - 7	2536	2537	2538	2539	2540	2541	2542	2443
	8 - 15	2544	2545	2546	2547	2548	2549	2550	2551
	16 - 23	2552	2553	2554	2555	2556	2557	2558	2559

Table 45
Main cabinet DN assignments — DN 2200 on Card 6 Unit 0

Card	Unit	Directory Number (DN)							
		Assign 2080 as First DN							
6	0 - 3	2200	2201	2202	2203				
7	0 - 7	2224	2225	2226	2227	2228	2229	2230	2231
	8 - 15	2232	2233	2234	2235	2236	2237	2238	2239
	16 - 23	2240	2241	2242	2243	2244	2245	2246	2247
8	0 - 7	2248	2249	2250	2251	2252	2253	2254	2255
	8 - 15	2256	2257	2258	2259	2260	2261	2262	2263
	16 - 23	2264	2265	2266	2267	2268	2269	2270	2271
9	0 - 7	2272	2273	2274	2275	2276	2277	2278	2279
	8 - 15	2280	2281	2282	2283	2284	2285	2286	2287
	16 - 23	2288	2289	2290	2291	2292	2293	2294	2295

Table 46
Expansion cabinet DN assignments — DN 2200 on Card 6 Unit 0

Card	Unit	Default Directory Number (DN)							
11	0 - 7	2320	2321	2322	2323	2324	2325	2326	2327
	8 - 15	2328	2329	2330	2331	2332	2333	2334	2335
	16 - 23	2336	2337	2338	2339	2340	2341	2342	2343
12	0 - 3	2344	2345	2346	2347				
13	0 - 7	2368	2369	2370	2371	2372	2373	2374	2375
	8 - 15	2376	2377	2378	2379	2380	2381	2382	2383
	16 - 23	2384	2385	2386	2387	2388	2389	2390	2391
14	0 - 3	2392	2393	2394	2395				
15	0 - 7	2416	2417	2418	2419	2420	2421	2422	2423
	8 - 15	2424	2425	2426	2427	2428	2429	2430	2431
	16 - 23	2432	2433	2434	2435	2436	2437	2438	2439
16	0 - 3	2440	2441	2442	2443				
17	0 - 7	2464	2465	2466	2467	2468	2469	2470	2471
	8 - 15	2472	2473	2474	2475	2476	2477	2478	2479
	16 - 23	2480	2481	2482	2483	2484	2485	2486	2487
18	0 - 7	2488	2489	2490	2491	2492	2493	2494	2495
	8 - 15	2496	2497	2498	2499	2500	2501	2502	2503
	16 - 23	2504	2505	2506	2507	2508	2509	2510	2511
19	0 - 7	2512	2513	2514	2515	2516	2517	2518	2519
	8 - 15	2520	2521	2522	2523	2524	2525	2526	2527
	16 - 23	2528	2529	2530	2531	2532	2533	2534	2535

Table 47
Main cabinet DN assignments — DN 2200 on Card 7 Unit 0

Card	Unit	Directory Number (DN)							
		Assign 2056 as First DN							
7	0 - 7	2200	2201	2202	2203	2204	2205	2206	2207
	8 - 15	2208	2209	2210	2211	2212	2213	2214	2215
	16 - 23	2216	2217	2218	2219	2220	2221	2222	2223
8	0 - 7	2224	2225	2226	2227	2228	2229	2230	2231
	8 - 15	2232	2233	2234	2235	2236	2237	2238	2239
	16 - 23	2240	2241	2242	2243	2244	2245	2246	2247
9	0 - 7	2248	2249	2250	2251	2252	2253	2254	2255
	8 - 15	2256	2257	2258	2259	2260	2261	2262	2263
	16 - 23	2264	2265	2266	2267	2268	2269	2270	2271

Table 48
Expansion cabinet DN assignments — DN 2200 on Card 7 Unit 0

Card	Unit	Default Directory Number (DN)							
11	0 - 7	2296	2297	2298	2299	2300	2301	2302	2303
	8 - 15	2304	2305	2306	2307	2308	2309	2310	2311
	16 - 23	2312	2313	2314	2315	2316	2317	2318	2319
12	0 - 3	2320	2321	2322	2323				
13	0 - 7	2344	2345	2346	2347	2348	2349	2350	2351
	8 - 15	2352	2353	2354	2355	2356	2357	2358	2359
	16 - 23	2360	2361	2362	2363	2364	2365	2366	2367
14	0 - 3	2368	2369	2370	2371				
15	0 - 7	2392	2393	2394	2395	2396	2397	2398	2399
	8 - 15	2400	2401	2402	2403	2404	2405	2406	2407
	16 - 23	2408	2409	2410	2411	2412	2413	2414	2415
16	0 - 3	2416	2417	2418	2419				
17	0 - 7	2440	2441	2442	2443	2444	2445	2446	2447
	8 - 15	2448	2449	2450	2451	2452	2453	2454	2455
	16 - 23	2456	2457	2458	2459	2460	2461	2462	2463
18	0 - 7	2464	2465	2466	2467	2468	2469	2470	2471
	8 - 15	2472	2473	2474	2475	2476	2477	2478	2479
	16 - 23	2480	2481	2482	2483	2484	2485	2486	2487
19	0 - 7	2488	2489	2490	2491	2492	2493	2494	2495
	8 - 15	2496	2497	2498	2499	2500	2501	2502	2503
	16 - 23	2504	2505	2506	2507	2508	2509	2510	2511

Table 49
Main cabinet DN assignments — DN 2200 on Card 8 Unit 0

Card	Unit	Directory Number (DN)							
		Assign 2032 as First DN							
8	0 - 7	2200	2201	2202	2203	2204	2205	2206	2207
	8 - 15	2208	2209	2210	2211	2212	2213	2214	2215
	16 - 23	2216	2217	2218	2219	2220	2221	2222	2223
9	0 - 7	2224	2225	2226	2227	2228	2229	2230	2231
	8 - 15	2232	2233	2234	2235	2236	2237	2238	2239
	16 - 23	2240	2241	2242	2243	2244	2245	2246	2247

Table 50
Expansion cabinet DN assignments — DN 2200 on Card 8 Unit 0

Card	Unit	Default Directory Number (DN)							
11	0 - 7	2272	2273	2274	2275	2276	2277	2278	2279
	8 - 15	2280	2281	2282	2283	2284	2285	2286	2287
	16 - 23	2288	2289	2290	2291	2292	2293	2294	2295
12	0 - 3	2296	2297	2298	2299				
13	0 - 7	2320	2321	2322	2323	2324	2325	2326	2327
	8 - 15	2328	2329	2330	2331	2332	2333	2334	2335
	16 - 23	2336	2337	2338	2339	2340	2341	2342	2343
14	0 - 3	2344	2345	2346	2347				
15	0 - 7	2368	2369	2370	2371	2372	2373	2374	2375
	8 - 15	2376	2377	2378	2379	2380	2381	2382	2383
	16 - 23	2384	2385	2386	2387	2388	2389	2390	2391
16	0 - 3	2392	2393	2394	2395				
17	0 - 7	2416	2417	2418	2419	2420	2421	2422	2423
	8 - 15	2424	2425	2426	2427	2428	2429	2430	2431
	16 - 23	2432	2433	2434	2435	2436	2437	2438	2439
18	0 - 7	2440	2441	2442	2443	2444	2445	2446	2447
	8 - 15	2448	2449	2450	2451	2452	2453	2454	2455
	16 - 23	2456	2457	2458	2459	2460	2461	2462	2463
19	0 - 7	2464	2465	2466	2467	2468	2469	2470	2471
	8 - 15	2472	2473	2474	2475	2476	2477	2478	2479
	16 - 23	2480	2481	2482	2483	2484	2485	2486	2487

Table 51
Main cabinet DN assignments — DN 2200 on Card 9 Unit 0

Card	Unit	Directory Number (DN)							
		Assign 2008 as First DN							
9	0 - 7	2200	2201	2202	2203	2204	2205	2206	2207
	8 - 15	2208	2209	2210	2211	2212	2213	2214	2215
	16 - 23	2216	2217	2218	2219	2220	2221	2222	2223

Table 52

Expansion cabinet DN assignments — DN 2200 on Card 9 Unit 0

Card	Unit	Default Directory Number (DN)							
11	0 - 7	2248	2249	2250	2251	2252	2253	2254	2255
	8 - 15	2256	2257	2258	2259	2260	2261	2262	2263
	16 - 23	2264	2265	2266	2267	2268	2269	2270	2271
12	0 - 3	2272	2273	2274	2275				
13	0 - 7	2296	2297	2298	2299	2300	2301	2302	2303
	8 - 15	2304	2305	2306	2307	2308	2309	2310	2311
	16 - 23	2312	2313	2314	2315	2316	2317	2318	2319
14	0 - 3	2320	2321	2322	2323				
15	0 - 7	2344	2345	2346	2347	2348	2349	2350	2351
	8 - 15	2352	2353	2354	2355	2356	2357	2358	2359
	16 - 23	2360	2361	2362	2363	2364	2365	2366	2367
16	0 - 3	2368	2369	2370	2371				
17	0 - 7	2392	2393	2394	2395	2396	2397	2398	2399
	8 - 15	2400	2401	2402	2403	2404	2405	2406	2407
	16 - 23	2408	2409	2410	2411	2412	2413	2414	2415
18	0 - 7	2416	2417	2418	2419	2420	2421	2422	2423
	8 - 15	2424	2425	2426	2427	2428	2429	2430	2431
	16 - 23	2432	2433	2434	2435	2436	2437	2438	2439
19	0 - 7	2440	2441	2442	2443	2444	2445	2446	2447
	8 - 15	2448	2449	2450	2451	2452	2453	2454	2455
	16 - 23	2456	2457	2458	2459	2460	2461	2462	2463

Removing numbering plan interferences

Interference with ACD queues

The system has pre-programmed ACD queues for Meridian Mail, the Central Answering Position, and general purpose ACD. (Pre-programmed ACD queues are listed in “Chapter 22 – Pre-programmed Data” on page 343.) To remove these values, use LD 23.

Note: Before removing this data from the system, make sure that all ACD agent information is removed from the queue.

In LD 23, respond to the prompts as follows:

LD 23

REQ OUT

TYPE ACD

CUST 0

ACDNXXXX“XXXX” = Value of ACD queue

Repeat for each ACD queue you wish to remove.

Interference with Call Park extension numbers

System call park extension numbers are pre-programmed for the Central Answering Position. (Refer to “Chapter 22 – Pre-programmed Data” on page 343) To remove this data from the system, load LD 50 and respond to the prompts as follows:

LD 50

REQ OUT

TYPE CPK

CUST 0

SPDNXXXX“XXXX” = Value of Call Park extension

Repeat for each Call Park extension you wish to remove.

Interference with SDI ports

Five SDI/ESDI ports are pre-programmed. Ports 8 and 9 are associated with the Meridian Mail option, and ports 0, 1 and 2 are associated with the Small System Controller (SSC) card. Port 0 is associated with SSC card and cannot be removed. Any of the remaining ports can be removed using LD 17 as follows.

LD 17

REQ CHG

TYPE CFN

ADANOUT TTY X “X” = the TTY that you are removing

Interference with the SPRE code

If the pre-programmed SPRE code interferes with the programming required for the Option 11C Compact system, use LD 15 to remove it. For customer 0 enter the following in response to the SPRE prompt:

LD 15

SPREXy “y” = the value of the SPRE code

Note: To define a new SPRE code, type a space and enter the new number.

Interference with the attendant extension number

The attendant extension number cannot be removed from the system; however, the default number can be replaced with another number.

LD 15

REQ CHG CHG = Change

TYPE CDB CDB = Customer Data Block

CUSTx “x” = Customer number

.

ATDNxxxx “xxxx” = the new extension number

Changing or removing the pre-programmed night number

The default value of the night number is listed in “Chapter 22 – Pre-programmed Data” on page 343.

To change or remove the night number, use LD 15.

LD 15

REQCHG CHG = Change

TYPECDBCDB = Customer Data Block

CUSTx “x” = Customer number

NIT1 bbbb, or Xaaaa“bbbb” = the new extension number (DN)

Or

“aaaa” = the current night number
(the night number is now removed).

Interference with Flexible Feature Codes

If the pre-programmed Flexible Feature Codes interfere with the programming required for the Option 11C Compact system, use LD 57 to remove the data from the system. (Default FFCs are listed in “Chapter 22 – Pre-programmed Data” on page 343).

LD 57

To change one or more access codes, type in the following commands:

REQ	CHG, END	Change or end
TYPE	FFC	FFC = Flexible feature codes
CUST	0-31	Customer Number
FFCT	YES,(NO)	FFC Confirmation tone
CODE	aaaa	Enter access code prompt (aaaa)
AAAA	xx	Enter the new access code prompt (AAAA)
CODE	<CR>	Return to REQ
REQ	END	End program

To remove one access code, type in the following commands:

REQ	OUT	Action request
TYPE	FFC	FFC = Flexible feature codes
CUST	0-31	Customer Number
FFCT	YES,(NO)	FFC Confirmation tone
ALL	NO	Remove specific access code
CODE	aaaa	Enter access code prompt (aaaa)
AAAA	xx	Enter the new access code prompt (AAAA)
CODE	<CR>	Return to REQ
REQ	END	End program

To remove all access codes, type in the following commands:

REQ	OUT	Action request
TYPEFFC		FFC = Flexible feature codes
CUST0-31		Customer Number
FFCTYES,(NO)		FFC Confirmation tone
ALLYES		Remove all access codes
CODE<CR>		Return to REQ
REQEND		End program

Creating, changing, and removing telephone models

To create telephone models that are different from the default models provided in Option 11C Compact software, use overlays to design the own models:

Task	Overlay
Create your own telephone models:	
Analog telephones (500/2500 type telephones)	LD 10
Digital telephones	LD 11
Get information on telephone models	LD 20 (printout)

For additional assistance when creating telephone models and trunks, refer to the *Option 11c Compact Software Guides* that are shipped with every system.

Creating analog telephone models

The following information must be entered in LD 10 in order to create an analogue (500/2500- type) telephone model:

LD 10

REQ NEW

TYPE 500 M

MODL YYY “YYY” = the model number of the
telephone that you are creating

Enter responses to the remaining prompts in order to complete the new model. (Refer to the Option 11C Compact *Software guides* for a complete list of prompts and possible responses).

Modifying analog telephone models

To modify an analog telephone, use LD 10 and type in the following commands on the TTY:

LD 10

REQ CHG

TYPE 500 M

MODL YYY “YYY” = the model number of the telephone that you are
modifying

For more information about LD 10 and its associated prompts and commands, refer to the Option 11C Compact *Software Guides* that are shipped with the system.

Creating digital telephone models

When creating telephone models for digital telephones, key 0 must be programmed with a function that can act as a prime extension number or its equivalent. This includes telephones that are programmed to have Single Call Ringing (SCR), Multiple Call Ringing (MCR), Single Call Non-Ringing (SCN), Multiple Call Non-Ringing (MCN), and Automatic Call Distribution (ACD).

For ACD telephones, the telephone model defines the ACD queue. To define the extension number, enter the ID number of the agent or the Central Answering Position.

The following information must be entered in LD 11 in order to create a digital telephone model:

LD 11

REQ NEW

TYPE 2XXX M or 3000 M“XXX” = allowed telephone types

MODL YYY “YYY” = the model number of the
telephone that you are creating
(between 1 - 127)

Enter the responses to the remaining prompts in order to complete the new model. (Refer to the Option 11C Compact *Software guides* for a complete list of prompts and possible responses).

Modifying digital telephone models

To modify a digital telephone, load LD 11 and enter the following information:

LD 11

REQ CHG

TYPE 2XXX M or 3000 M“XXX” = allowed telephone types

MODL YYY “YYY” = the model number of the
telephone that you are modifying

For more information about LD 11 and its associated prompts and commands, refer to the Option 11C Compact *Software guides* that are shipped with the system.

Printing model information

To print information about telephone models, use LD 20.

Analog telephones

LD 20

REQ PRT

TYPE 500 M

MODL YYY “YYY” = the telephone model number.

If you want to print all of the models for this telephone type, leave this value blank.

Digital telephones

Note: To print M3000 telephone models, enter “TYPE 3000 M”. If “TYPE 2XXX M” is entered, all the Meridian Digital Telephone models are printed except the M3000.

LD 20

REQ PRT

TYPE 2XXX M or 3000 M “XXX” = the telephone type

MODL YYY “YYY” = the telephone model number (between 1 - 127) If you want to print all of the models for this telephone type, leave this value blank.

Removing telephone models

Use LD 10 to remove analog telephone models and LD 11 to remove digital telephone models. Respond as follows to the prompts in either overlay:

LD 10 or LD 11

REQ	OUT
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
32	32
33	33
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45
46	46
47	47
48	48
49	49
50	50
51	51
52	52
53	53
54	54
55	55
56	56
57	57
58	58
59	59
60	60
61	61
62	62
63	63
64	64
65	65
66	66
67	67
68	68
69	69
70	70
71	71
72	72
73	73
74	74
75	75
76	76
77	77
78	78
79	79
80	80
81	81
82	82
83	83
84	84
85	85
86	86
87	87
88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

TYPE XXXX M“XXXX”= telephone type for the model you are removing (Example: 500, 2006, 2317, 2216, 3000, etc.)

CUST 0

MODL YYY“YYY” = the model number associated with the telephone type you are removing (Valid range is 1-127).

Creating trunk models and changing route access codes

Use overlay program 14 to create trunk models different from the default models provided in the system software. Route access codes are changed using the administration telephone.

For additional assistance when creating trunk models, refer to the *Option 11c Compact Software Guides* that are shipped with every system.

Creating trunk models

To create a new trunk model, load LD 14 and type in the following commands on the TTY:

LD 14

REQ NEW

TYPE aaa M “aaa” = the type of trunk that you are creating (TIE, COT, WATS, and so on).

MODL YYY "YYY" = the model number of the trunk being created
(between 1 - 127)

XTRK XUT, XEM, XCOT, This prompt only appears
XDID defining the first model in a group. Each
group consists of 16 consecutive model
definitions. (Refer to the group boundaries
listed below.) Once the first model in a
group is defined, the remaining model
numbers in the group(s) are assumed to
be of the same type.

Group boundaries are as follows:

1-15, 16-31, 32-47, 48-63, 64-79, 80-95, 96-111, 112-127.

Examples:

If, for example, a trunk model is defined as XUT, with a model number of 12, all models in the group 1-15 will automatically be XUT models. If another trunk model is defined as an XEM, with a model number of 33, all models in the group 32-47 will automatically be XEM models.

Note: When creating trunk models, the trunk route and member number is not prompted. This information is defined by using the administration telephone to program the XUT or XEM circuit card.

For more information about LD 14 and its associated prompts and commands, refer to the *Option 11c Compact Software Guides* that are shipped with the system.

Modifying trunk models

To modify a trunk, load LD 14 and enter following commands:

LD 14

REQ CHG

TYPE aaa M “aaa” = the type of trunk that you are
modifying

MODL YYY “YYY” = the model number of the trunk
that you are modifying (between 1 - 127)

Removing trunk models

To remove a trunk model from the system, load LD 14 and respond to the prompts as follows:

LD 14

REQ OUT

TYPE XXX M“XXX” = the trunk type of the model that
 you are removing (Examples: COT, TIE,
 DID, FEX, WAT, etc.)

CUST 0

MODL YYY“YYY” = the model number associated
 with the trunk type you are removing
 (Valid range is 1-127).

Printing model information

To print information about trunk models, load LD 20 and enter the following commands:

LD 20

REQ PRT

TYPE TTTT M“TTTT” = the trunk type

MODL YYY “YYY” = the model number. If you want to print all of the
models for this trunk type, leave this value blank.

Changing a route access code

[Procedure 79](#) describes how to change a route access code.

Procedure 79

- 1 Lift the handset of the administration telephone.
- 2 Enter the administration Flexible Feature Code to access the administration menu. (This value is listed in “Chapter 22 – Pre-programmed Data” on page 343.)
- 3 Enter the default administration telephone password. (This value is listed in “Chapter 22 – Pre-programmed Data” on page 343.)

Special dial tone is heard and the prompt
“TASK?”
appears on the top line of the character display. Press the asterisk.

“2 CHANGE ROUTE ACCESS”
appears on the second line of the character display.
- 4 Select “2 CHANGE ROUTE ACCESS” by entering the number “2”.

The prompt
“ROUTE ACCESS?”
appears on the character display.
- 5 Enter the access code of the route to be modified and press the pound key (#).

The prompt
“NEW ACCESS CODE?”
asks for a new access code for the route.

- 6** Enter the new access code and press the pound key.
- The display shows
“CODE CHANGED”.
- After a delay of approximately 4 seconds special dial tone is heard and the sequence is repeated when the prompt
“ROUTE ACCESS?”
appears.
- OR
- If the route access code is not available for use, overflow tone is heard.
- The display shows
“USED, ROUTE ACCESS?”
- Repeat this step and enter a **different** access code. This sequence continues until an appropriate new access code is entered.
- 7** Terminate the sequence by hanging up the telephone.
- OR
- Repeat the sequence by going through the steps again.

End of Procedure

Chapter 24 — Fault locating and clearing

This chapter contains fault clearing information for Meridian 1 Option 11C Compact.

To clear faults, you should have a basic knowledge of Option 11C Compact system operation and maintenance.

In this chapter, “replacing equipment” means removing a faulty piece of equipment and installing identical operating equipment.

Locating and clearing faults is based on the assumption that the system is properly installed (for example, all circuit card locations, option switch settings, and cable connections are correct) and was fully operational before the fault.

Precautions

General precautions

Option 11C Compact equipment is based on solid state circuitry which is sensitive to static electricity and environmental conditions. Follow the precautions in this section to avoid personal injury and equipment damage.

WARNING

To avoid the danger of electric shock, be careful when working with power equipment and connections. Warning notices are displayed and should be heeded.

In the Option 11C Compact system power supply, there are no user-serviceable parts. Do not disassemble a power supply under any circumstances, because there is risk of electric shock. If a power supply fails, it must be replaced.

To avoid damage to circuit cards from static discharge, touch the cabinet frame before handling circuit cards. This discharges the static electricity that builds up in your body and clothing.

Fiber cable

The following precautions should be observed when handling fiber cables.

- Do not staple
- Avoid sharp bends
- Always replace the rubber plugs into the fiber cable connectors when the fiber cable is removed. The connectors must be kept clean.

WARNING

The fiber optic interface product used in Meridian 1 Option 11C Compact is considered harmless. However, as a precaution do not view the optical port or the end of fiber optic cable. Under certain conditions (such as during cable testing or under light magnification) the cable or port may expose the eye beyond the limits of Maximum Permissible Exposure recommended in some jurisdictions. Do not remove protective caps or plugs until ready to connect the cable.

Circuit cards

Handle cards as follows:

- Touch the cabinet frame to discharge static electricity before handling circuit cards.
- Handle circuit cards by the faceplate and edges only. Do not touch the contacts or components.
- Keep circuit cards installed in the system as much as possible to avoid dirty contacts and unnecessary wear.
- Set circuit cards on a protective antistatic bag. If an antistatic bag is not available, hold the card, or set it in a card slot unseated from the connectors.

- Unpack or handle circuit cards away from electric motors, transformers, or similar machinery.
- Store circuit cards in protective packing. Do not stack cards on top of each other unless they are packaged.
- Store circuit cards in a dry dust-free area.

During repair and maintenance procedures:

- Insert circuit cards into compatible slots only.
- Turn off the circuit breaker or switch for a cabinet power supply before the power supply is removed or inserted.
- Software disable circuit cards, if applicable, before they are removed or inserted.
- Hardware disable circuit cards, whenever there is an enable/disable switch, before they are removed or inserted.
- Return defective circuit cards to a repair center; do not try to repair or clean them.

Communicating with the system

You can exchange information with the system through the system terminals and the maintenance telephone. This section discusses these tools for communicating with the system.

System terminal

You can send maintenance commands and receive system messages by accessing the system through an RS-232 device, such as a video display terminal (VDT) or teletypewriter (TTY).

Software format

Through the system terminal, you can enter commands that tell the system to perform specific tasks; the system performs the tasks and sends messages back to the system terminal, indicating status or errors. System messages, along with indicators such as light emitting diode (LED) indicators, identify faults in the system.

System messages are codes with a mnemonic and number. Some messages contain additional information indicating the location of the fault, such as BSD090 MAIN. The mnemonic identifies a software program or a type of message. The number identifies the specific message. [Table 53](#) gives an example of the format for a system message.

See the *Option 11C Compact software guide* for a description of all maintenance commands and the interpretation of all system messages.

Table 53
System message format

System message: BSD090 MAIN	Interpretation
BSD090	This message concerns power equipment or information generated by the system monitor
MAIN	Additional information indicating a power fault in the MAIN cabinet

Local and remote access

A system terminal can be connected at the main and expansion cabinets.

When a system terminal is installed locally, it is connected directly to a Serial Data Interface (SDI) port, located within the main or expansion cabinet, or within both cabinets. When a system terminal is installed at a remote location, modems and a telephone line are required between the terminal and the SDI port.

When a system terminal is installed at the main cabinet, it is connected to a Serial Data Interface (SDI) port located within the main cabinet.

When a system terminal is connected to an expansion cabinet, it is connected to a Serial Data Interface (SDI) port which is part of the Fbr Rcvr card in the expansion cabinet.

When a system terminal is installed at a remote location that does not have an expansion cabinet, modems and a telephone line are required between the terminal and the SDI port.

An alternate connection option for either local or remote access is to connect to the system using Ethernet in the main cabinet.

Maintenance telephone

A telephone functions as a maintenance telephone when the class-of-service is defined as MTA (maintenance allowed) in LD 11 or the telephone is assigned as a Model 99.

A maintenance telephone allows the sending of commands to the system, but can only use a subset of the commands that can be entered from a system terminal. The maintenance telephone, however, takes priority over a system terminal and will log the terminal out.

Tones and outpulsing can be tested using the maintenance telephone. Specific commands for tone testing are given in Tone and Digit Switch and Digitone Receiver Diagnostic (LD 34).

To enter commands on a maintenance telephone, press the keys that correspond to the letters and numbers of the command. Refer to the section [“Accessing the system” on page 438](#) for information about entering commands from a maintenance telephone.

Hardware maintenance tools

There are fault indicators and hardware features which help perform maintenance tasks (particularly identifying and clearing faults). These maintenance tools include:

- Circuit card features which perform self-tests, indicate status, and minimize adverse affects on call processing.
- CPU controls which allow you to control common equipment functions.
- System monitor indicators which identify power and other faults.

Circuit card features

Circuit card features include:

- self-tests
- LED indicators

Self-tests

A self-test checks to see that a circuit card is working correctly. Many cards perform a self-test on power-up. The software commands Disable and Enable forces a card to self-test. The results of a self-test generally show whether or not there is a problem with the card.

Self test information for ISDN 1.5 Mb DTI/PRI cards are contained in *1.5 Mb DTI/PRI Administration and Maintenance*.

NTMW01 SSC card Faceplate LEDs

The NTMW01 SSC (Small System Controller) card has two faceplate LEDs. The top LED indicates the status of the SSC circuit card. The middle and bottom LEDs indicate the status of the NTDK22 Fiber Daughter Board. Fbr 1 indicates the status of the fiber link.

Table 54
NTMW01 LEDs

LED	State	Definition
Top	Yellow	SSC is in disabled state.
	Red (steady)	SSC self-test being performed
	Red (flashing three times)	Self-test passed
	Off	SSC is in normal operating mode.
	Green (steady or flashing)	PCMCIA device is being accessed.
Fbr 1	Red (steady)	Fiber Daughter Board is in disabled state.
	Red (flashing three times)	Self-test passed
	Yellow	Fiber Daughter Board is enabled, link is not established.
	Green	Fiber Daughter Board is enabled, link is established.
	Off	Invalid state, hardware malfunction

NTMW10 Fbr Rcvr card Faceplate LEDs

The NTMW10 Fbr Rcvr card has three faceplate LEDs. The top LED indicates the status of the card. The middle LED indicates the status of the Serial Data Interface (SDI) port. The bottom LED indicates the status of the fiber link.

Table 55
NTMW10 LEDs

LED	State	Definition
Top	On	Card is in disabled state.
	Off	Card is in normal operating mode.
SDI	On	SDI port is in disabled state.
	Off	SDI port is in normal operating mode.
Fbr	Red (steady)	Self-test in progress.
	Red (flashing three times)	Self-test passed.
	Yellow	Fiber link is not established.
	Green	Fiber link is established.
	Off	Invalid state, hardware malfunction

Monitor Jacks

The NTMW04 has two bantam jacks (RCV and XMT) located on the faceplate. They may be used to monitor the performance of the carrier in the receive and transmit direction. The jacks allow the convenient connection of external T1/E1 test equipment and ISDN protocol analyzers.

Initialize button

Pressing the manual initialize button starts the Initialize Program which clears common equipment faults then rebuilds call-dependent data and generates system messages indicating the status of the system. This process is called an *initialization* (or INI). Call processing is briefly interrupted during an initialization.

System alarms

Major alarms

A major alarm indicates a fault which seriously interferes with call processing. The causes of major alarms are listed in [Table 56](#).

Minor alarms

A minor alarm indicates the system hardware or software has detected a fault requiring attention. The causes of minor alarms are listed in [Table 56](#).

A minor alarm displays an alarm on attendant consoles in customer groups affected by the fault. (A minor alarm indication on the console is an optional feature, enabled and disabled on a customer basis through data administration procedures.)

Remote alarms

A remote alarm, in the context of general maintenance, is an extension of a major alarm on the system to another location or to an audible or visual indicator. The system generates a signal indicating it has a major alarm condition and sends it to a remote location, such as a monitoring center or test center, or to an indicator, such as a light or bell.

Table 56
Causes of major and minor alarms

Alarm	Cause
Major	CPU or control bus failure Software daughterboard failure when attempting to load the system System power faults
Minor	Conference failure Digitone receiver failure Memory failure More than one fault on different line and trunk cards in one cabinet Serial Data Interface failure Tone and digit switch failure

Line transfer

The NTMW07 Line/Trunk card has a built-in Power Failure Transfer (PFT) feature, designed to operate with a loop start trunk. This feature allows the connecting one trunk on the card to an analog telephone on the same card in the event of a commercial power or system failure.

Note: Ground start trunks require a telephone set equipped with a ground start button to place outgoing calls when in PFT mode.

The Terminal Numbers (TNs) that are equipped to perform the PFT function vary depending on the slot assignment in the cabinets. When a PFT occurs, the following are connected:

- **In the Main cabinet**

- When the NTMW07 card is in slot 1/2
TN 01 03 connects to TN 02 03
(Trunk on Card 01 Unit 03 connects to the telephone on Card 02 Unit 03)
- When the NTMW07 card is in slot 3/4
TN 03 03 connects to TN 04 03
(Trunk on Card 03 Unit 03 connects to the telephone on Card 04 Unit 03)
- When the NTMW07 card is in slot 5/6
TN 05 03 connects to TN 06 03
(Trunk on Card 05 Unit 03 connects to the telephone on Card 06 Unit 03)

- **In the Expansion cabinet**

- When the NTMW07 card is in slot 11/12
TN 11 03 connects to TN 12 03
(Trunk on Card 11 Unit 03 connects to the telephone on Card 12 Unit 03)
- When the NTMW07 card is in slot 13/14
TN 13 03 connects to TN 14 03
(Trunk on Card 13 Unit 03 connects to the telephone on Card 14 Unit 03)
- When the NTMW07 card is in slot 15/16
TN 15 03 connects to TN 16 03
(Trunk on Card 15 Unit 03 connects to the telephone on Card 16 Unit 03)

A line transfer occurs:

- during a sysload (SYSLOAD)
- if there is a major power failure
- if call processing stops due to a CPU failure
- if there is a loss of power to the cabinet
- if there is an over-temperature condition in a cabinet

Software maintenance tools

Software maintenance tools help identify and clear faults, and provide self-checking capabilities. Software maintenance tools are divided into the following categories:

- Diagnostic programs monitor a variety of operations, detect faults, and initiate corrective action during normal call processing.
- The History File records maintenance-related system messages.
- Interactive programs test hardware, isolate faults, and verify fault clearing.

Diagnostic programs

Diagnostic software programs monitor system operations, detect faults, and clear faults. Some programs run continuously, some are scheduled as part of the Midnight Routine, which is run automatically at a preset time.

Overlays

Some programs are also called overlays or loads. They are identified by a title and a number preceded by the mnemonic for load (for example, Trunk Diagnostic — LD 36).

See the *Option 11C Compact Software Guides* for detailed information on all diagnostic programs.

Error Monitor

The Error Monitor is a resident program which continuously tracks call processing. The Error Monitor generates system messages if it detects invalid or incorrectly formatted call processing information.

System messages generated by the Error Monitor are preceded by the mnemonic ERR, which usually indicates hardware faults, or the mnemonic BUG, which usually indicates software problems.

Initialize Program

The Initialize Program momentarily interrupts call processing as it clears common equipment faults. It then rebuilds call-dependent data and generates system messages, with the mnemonic INI, which indicate the status of the system. This process is called an *initialization* (or *INI*).

You can activate an initialization by pressing the manual initialize (Man Int) button on the NTMW01 SSC card.

An initialization occurs automatically after the System Loader program runs, when a software or firmware fault is detected, and when a common equipment hardware fault is detected.

Midnight and Background Routines

In the Configuration Record (LD 17), you can select the nonresident software programs which will run in the *Midnight Routine* and *Background Routine*. These routines automatically perform maintenance checks. Programs included in the Midnight Routine are defined with the prompt DROL (derived from “daily routine overlay”). Programs included in the Background Routine are defined with the prompt BKGD.

The Midnight Routine runs once every 24 hours. This routine is preset to run at midnight when a system is shipped, but you may assign a different time in the Configuration Record. When it is time for the Midnight Routine to start, the system cancels any other program.

The Background Routine runs when no other program is loaded in the overlay area. The programs included in the Background Routine run in sequence repeatedly until there is another request to use the overlay area (for example, if you log on to check the status of a circuit card) or the Midnight Routine runs.

You may include the programs listed in [Table 57](#) in Midnight and Background Routines. Software Audit (LD 44), and Network and Signaling Diagnostic (LD 30) should always be used in the Background Routine.

Table 57
Programs used in Midnight and Background Routines

Program number	Program function
LD 30	Network and Signaling Diagnostic
LD 33	1.5 Mb/s Remote Peripheral Equipment Diagnostic
LD 34	Tone and Digit Switch and Digitone Receiver
LD 36	Trunk Diagnostic 1
LD 38	Conference Circuit Diagnostic
LD 40	Call Detail Recording Diagnostic
LD 41	Trunk Diagnostic 2
LD 43 (Midnight only)	Data Dump
LD 44	Software Audit
LD 46	Multifrequency Sender Diagnostic
LD 60 (Midnight only)	Digital Trunk Interface Diagnostic
LD 61 (Midnight only)	Message Waiting Lamp
LD 135	Common Equipment Diagnostic
LD 137	Input/Output Diagnostic

Overlay Loader

This program locates, loads, and checks software programs. It automatically activates the Midnight and Background Routines. You can load programs manually by entering commands through the system terminal or maintenance telephone. Once the program is loaded, you see the program mnemonic (such as TRK for Trunk Diagnostic) on the system terminal.

Overload Monitor

The volume of system messages is continuously monitored by the system. If too many error messages are detected from a line or trunk card, the system activates the Overload Monitor program. The Overload Monitor disables the faulty card and generates system messages with the mnemonic OVD.

Resident Trunk Diagnostic

This program automatically monitors all trunk calls and records apparent faults on each trunk. If the number of faults on a trunk exceeds the threshold for that trunk, the program generates a system message identifying the trunk and the type of fault.

A failure on a trunk may keep the trunk from detecting incoming calls. The threshold mechanism cannot detect such a failure, so this program also records how many days it has been since each trunk received an incoming call. If you suspect some incoming calls are not being processed, you can use the command LMAX in Trunk Diagnostic 1 (LD 36) to identify the trunk with the maximum idle days.

System Loader

The System Loader program loads all call processing programs and data, and starts memory-checking diagnostics. After all required programs and data have been loaded and all checks performed, the System Loader is erased from system memory, the Initialize Program runs, and normal call processing begins. This process is called a *sysload* (or *system reload*).

The System Loader operates automatically on system power up or if a common equipment or power fault destroys information in the system memory.

History File

If a printer is connected to the system, each system message is printed as it is received. If a printer is not connected, you can use the History File (if equipped) to store a limited number of system messages in protected memory. The contents of the file may then be printed on demand, using LD 22.

The messages stored are specified on a system basis and can be one or more of the following types:

- customer service changes (CSC)
- maintenance messages
- service changes (SCH)
- software errors

- initialization and sysload messages
- traffic messages

For information on selecting the messages to be stored, see the *Option 11C Compact Software Guides*.

The contents of the History File are erased during a sysload or if you change the length of the History File. However, the contents survive an initialization.

You can change the length of the History File with the prompt HIST in the Configuration Record (LD 17).

If the History File is full, the first messages stored are replaced by incoming messages. If this happens, the system gives a “file overflow” message at the start of a printout so you know some information has been replaced by newer messages.

End user reports

Reports from system users often indicate problems that may not be indicated by the system. Many faults reported by users, such as a damaged telephone or data set, are obvious and can be fixed by replacing the damaged equipment.

Some faults are less obvious and may be caused by other equipment, such as a defective peripheral equipment line or trunk card. To classify the fault in these cases, check for system messages and visual fault indications. You may also need to have the user reproduce the problem so you can determine the sequence of events that led to the fault.

User report indications

[Table 58](#) lists problems that are typically reported by users.

Table 58
User report indications

User report	Type of fault
Major alarm reported by attendant No ring on 500/2500-type telephones	Power
Major alarm reported by attendant	Common equipment
Minor alarm reported by attendant Users cannot transfer or conference Users cannot dial out on 500/2500-type telephones	Common equipment
Trouble with calls on attendant console Trouble with calls on telephones	Peripheral equipment
Users have trouble with a specific trunk Callers report continuous ringing Trouble with calls on console and/or telephones	Trunk
Trouble with calls Trouble with equipment (such as handset, headset, or display)	Attendant console
Trouble with calls Trouble with equipment (such as handset or add-on module)	Telephone

Technical assistance service

Nortel Technical Assistance Centers

To help customers obtain maximum benefit, reliability, and satisfaction from their Meridian 1 Option 11C Compact, Nortel provides technical assistance in resolving system problems. This service is provided through the centers listed in [Table 59](#).

Table 59
Technical Assistance Centers

Location	Contact
Nortel (ETAS) 2100 Lakeside Blvd. Richardson, Texas, USA 75082	Telephone: 972-437-8282 Fax: 972-437-8913
Nortel (CTAS) P.O. Box 4000 250 Sydney Street Belleville, Ontario, Canada K8N 5B7	Telephone: 613-966-8181 Fax: 613-967-5360

Services available

Services available through the Technical Assistance Centers include:

- diagnosing and resolving software problems not covered by support documentation
- diagnosing and resolving hardware problems not covered by support documentation
- assisting in diagnosing and resolving problems caused by local conditions

There are several types of class-of-service available. Emergency requests (Class E1 and E2) receive an immediate response. Service for emergency requests is continuous until normal system operation is restored. Non-emergency requests (Class S1, S2, and NS) are serviced during normal working hours. Service classifications are described further in [Tables 60 and 62](#).

Except as excluded by the provisions of warranty or other agreements with Nortel, a fee for technical assistance may be charged, provided at rates established by Nortel. Information on rates and conditions for services are available through Nortel sales representatives.

Table 60
Technical service emergency classifications

Class	Degree of failure	Symptoms
E1	Major failure causing system degradation or outage	System out of service with complete loss of call-processing capability Loss of total attendant console capability Loss of incoming or outgoing call capability Call processing degraded for reasons such as trunk group out of service • 10% or more lines out of service • Frequent initializations (seven per day or more) • inability to recover from initialization or sysload • consistently slow dial tone (eight seconds or more delay)
E2	Major failure causing potential system degradation or outage	Frequent initializations (one per day or more)

Table 61
Technical services non-emergency classifications

Class	Degree of failure	Symptoms
S1	Failure which affects service	Software or hardware trouble directly and continuously affecting user's service or customer's ability to collect revenue Problem that will seriously affect service at in-service or cut-over date
S2	Intermittent failure which affects service	Software or hardware faults that only intermittently affect service System-related documentation errors which directly result in or lead to impaired service
NS	Failure which does not affect service	Documentation errors Software inconsistencies which do not affect service Hardware diagnostic failures (not defined above) which cannot be corrected by resident skills Test equipment failures for which a backup or manual alternative can be used Any questions concerning products

Requesting assistance

Collect the information listed in [Table 62](#) before calling for service.

Table 62
Checklist for service requests

Name of person requesting service	_____
Company represented	_____
Telephone number	_____
System type/identification	_____
Installed software generic and issue (located on data disk)	_____
Modem telephone number and password (if applicable)	_____
Seriousness of request (see Tables 60 and 61)	_____
Description of assistance required	_____

How to clear faults

Fault clearing process

When a fault must be cleared in the Option 11C Compact, follow these steps:

- Observe and record all fault indicators.
- System messages, visual fault indicators and user reports identify many problems. If the indicators are not current or seem incomplete, you may need to print the History File for previous messages, you may need to initialize the system for information on the current status, or both.
- Look up all system messages in the *Option 11C Compact Software Guide*.

The interpretation of the message may identify faulty equipment and indicate what action to take to clear the problem. If you cannot clear the fault through information in the *Option 11C Compact Software Guide*, follow the process in this section to isolate and clear the fault.

- Try to enable or test disabled equipment.
- You may be able to hardware re-enable circuit cards by unseating then reinstalling them. You may be able to software re-enable cards by disabling then re-enabling them. When the cause of a fault is not clearly evident, a software test may help you identify the problem.
- Replace equipment as necessary.

How to clear faults

To clear faults in the Option 11C Compact system, follow the steps below:

- 1 Classify the fault by the indicators present (see the section [“Fault indicators” on page 434](#). When there are indications of multiple faults, clear them in the following order:
 - [“Clearing power faults” on page 443](#)
 - [“Clearing Common Equipment faults” on page 448](#)
 - [“Clearing Network faults” on page 455](#)
 - [“Clearing Peripheral Equipment faults” on page 469](#)
 - [“Clearing trunk faults” on page 477](#)
 - [“Clearing attendant console faults” on page 484](#)
 - Telephone faults
- Note:** Always clear possible power faults then Common Equipment faults before any other type of fault.
- 2 Go to the section for clearing the type of fault identified. There is a section for each type of fault listed above (for example, [“Clearing power faults” on page 443](#). As closely as possible, match the problem to a symptom listed in the section.
- 3 Go through the procedure for clearing each possible cause of the problem until the fault is cleared.
- 4 When the fault is corrected, follow the instructions in [“Final maintenance procedure” on page 508](#) to completely restore normal operation.

End of Procedure

Fault indicators

When there is a fault in the system, you may be notified by any combination of the following indicators:

- system messages
- visual fault indicators
- user reports

Each type of indicator is described below.

System messages

System messages are codes with a mnemonic and number, such as OVD021. The mnemonic identifies a software program or a type of message. The number identifies the specific message. Use system messages with other indicators, such as visual indicators, to identify and clear faults.

[Table 63](#) lists the most common fault indicating messages and the type of fault they indicate. For a complete list and interpretation of system messages, see the *Option 11C Compact Software Guide*.

Table 63**System message fault indicators and related fault types**

System messages	Type of fault
BSD90 messages	Power
CCED messages CED messages CIOD messages HWR messages INI001, 002, 004, 005, 007 IOD006, 007, 060, 061, 291—297 NWS030, 102, 103, 142 SYS messages	Common Equipment
CNF messages DTA, DTC, DTI messages ERR020, 120, 4060 INI003, 008—012 NWS101, 141, 201—204, 301, 401 OVD021, 022, 023, 031 SYS4696 TDS messages XMI messages	Network
ERR4062 NWS301, 401, 501 OVD001—010, 024 XMI messages	Peripheral Equipment
ERR090, 220, 270 OVD001—010 TRK messages	Trunk
ERR500 MWL500 NWS501 OVD001—010	Telephone

Visual fault indicators

There are visual indicators that can help identify faults. These indicators include:

- A major alarm display: indicates a possible power, or Common Equipment, or Network fault
- Circuit card Light Emitting Diodes (LEDs): indicates a card or a unit on a circuit card is disabled

[Table 64](#) lists visual indicators and the type of fault they might indicate.

Table 64
Visual fault indicators and related fault types

Indicator	Type of fault
Green LED off on a power supply Circuit breaker tripped (down) Remote alarm	Power
Red LED lit on CE card	Common Equipment
Minor alarm on an attendant console	Network
Red LED lit on associated card	Peripheral Equipment
Red LED lit on trunk card	Trunk
Red LED lit on associated cards	Attendant console
Red LED lit on associated cards	Telephone
Sync LED on Fbr Rcvr card	Fbr Rcvr card or Fiber cable

User reports

Many faults reported by users, such as a damaged telephone or data set, are obvious and can be fixed by replacing the damaged equipment.

Some faults are less obvious and may be caused by other equipment, such as a defective Peripheral Equipment circuit card. To classify the fault in these cases, check for system messages and visual fault indications. You may also have the user reproduce the problem so you can determine the sequence of events that led to the fault.

[Table 65](#) lists typical problems reported by users and the type of fault they might indicate.

Table 65
User reported problems and related fault types

User report	Type of fault
An alarm reported by attendant	Power
An alarm reported by attendant	Common Equipment
An alarm reported by attendant Cannot transfer or conference Cannot dial out on 500/2500-type telephones	Network
Trouble with calls on attendant console Trouble with calls on telephones	Peripheral Equipment
Trouble with a specific trunk Continuous ringing Trouble with calls on console and/or telephones	Trunk
Trouble with calls Trouble with equipment (such as handset, headset, or display)	Attendant console
Trouble with calls Trouble with equipment (such as handset or add-on module)	Telephone

Accessing the system

When replacing equipment, you send maintenance commands to the system software to disable faulty equipment and to software enable and test newly installed equipment.

You send maintenance commands to the system through the system terminal or the maintenance telephone. This section gives the procedures for accessing the system through these devices.

Access through the system terminal

You can send maintenance commands and receive system messages by accessing the CPU through an RS-232 device, such as a video display terminal (VDT) or teletypewriter (TTY).

When you access the system through a system terminal, a login procedure is required. All system passwords are initially set as 0000, but you can change passwords through the Configuration Record (LD 17).

If a sysload (SYSLOAD) occurs before you save a new password in a data dump, the last active password remains valid.

Each system has two levels of passwords: level 1 is for general use, level 2 is for administrative use. Either password is accepted in the login procedure.

[Procedure 80](#) describes how to access the system from a terminal.

Procedure 80**Accessing the system from a system terminal**

1 Press the return key.

- If the response is **OVL111 nn IDLE** or **OVL111 nn BKGD** you are ready to log into the system. Go to Step **2**.
- If the response is **OVL000 >** you are already logged into the system. Go to Step **4**.

Responses may vary with different Background Terminal packages.

2 Enter
LOGI
then press the return key.

The normal response is

PASS?

If there is any other response, see the *Option 11C Compact Software Guide*.

3 Enter either the level 1 or level 2 password and press the return key.
If the password is correct, the system responds with the prompt
>

4 Enter
LD xx
“xx” represents the number of the program.

5 Perform tasks.

6 End the program by entering

7 End the log in session with
LOGO

End of Procedure

Access through the maintenance telephone

A telephone functions as a maintenance telephone when you define the class-of-service as MTA (maintenance telephone allowed) in the Telephones program (LD 11).

A maintenance telephone allows you to send commands to the system, but you can only use a subset of the commands that can be entered from a system terminal. The maintenance telephone, however, takes priority over a system terminal and will log the terminal out.

You can test tones and outpulsing through the maintenance telephone. Specific commands for those tests are given in the Tone and Digit Switch and Digitone Receiver Diagnostic (LD 34).

You can test trunk connections through the maintenance telephone. Specific commands for those tests are given in the Trunk Diagnostic (LD 36).

No log in procedure is required when you access the system through a maintenance telephone. To enter commands, press the keys that correspond to the letters and numbers of the command (for example, to enter *LD 42 return*, key in 53#42##). [Table 66](#) shows the translation from a terminal keyboard to a telephone dial pad.

To use the maintenance telephone, the Terminal Number (TN) for that telephone must be operating.

[Procedure 81 on page 442](#) describes how to access the maintenance telephone.

Table 66
Translation from keyboard to dial pad

Keyboard				Dial Pad
			1	1
A	B	C	2	2
D	E	F	3	3
G	H	I	4	4
J	K	L	5	5
M	N	O	6	6
P	R	S	7	7
T	U	V	8	8
W	X	Y	9	9
			0	0
		Space or #		#
		Return		##

Note: There is no equivalent for Q or Z on a dial pad.

Procedure 81

Accessing the maintenance telephone

- 1 Press the prime DN key.
- 2 Place the telephone in maintenance mode by entering **xxxx91**
“xxxx” represents the customer Special Prefix (SPRE) number. It is defined in the Customer Data Block and can be printed using LD 21. The SPRE number is typically “1” (which means you would enter 191).
- 3 Check for busy tone by entering
**
 - If there is no busy tone, go to Step 4.
 - If there is a busy tone, a program is active. To end an active program and access the system, enter

- 4 Load a program by entering
53#xx##
“xx” represents the number of the program.
- 5 Perform tasks.
- 6 Press the release key to return the telephone to call processing mode. Background routines are then loaded automatically.

End of Procedure

Clearing power faults

Power faults

The various electrical voltages required to power the system, including ringing voltages for Analog 500- and 2500-type telephones and to light message waiting lamps on 2500-type telephones, are provided by a power supply located in each cabinet.

The power supply is located in the extreme left shelf position in each cabinet.

Fault clearing procedures

System messages with the mnemonic BSD090 contain power related information. They identify the type of equipment generating the message.

[Table 67](#) shows the power messages output

Table 67
BSD power messages

BSD090 message	Affected equipment
BSD090 MAIN-PWR	Power fault in the main cabinet.
BSD090 EXPANSION CABINET 1 - PWR	Power fault in expansion cabinet 1.
BSD POWER OK - MAIN CABINET	The power fault in the main cabinet no longer exists.
BSD POWER OK - EXPANSION CABINET 1	The power fault in the expansion cabinet 1 no longer exists.
BSD90 message multiple problem format This format is used to indicate more than one problem, and is output for both main and expansion cabinets.	Affected equipment

[Table 68](#) lists common power fault indications. To clear faults, select the symptom listed that most resembles the fault indications then go through the procedure for clearing each possible cause until the fault is fixed. Once the fault is corrected, disregard the remaining possible causes.

You must clear power faults before you try to clear other types of faults in the system. You must clear power faults in the main cabinet before clearing power faults in an expansion cabinet.

If the fault is not cleared after you have gone through each possible cause, check the most recent fault indications. Also check [“How to clear faults” on page 432](#) to see if another type of fault is indicated.

After the fault is corrected, go to [“Final maintenance procedure” on page 508](#) to completely restore normal operation.

Table 68
Power fault indications

Indicator	Possible indications
System messages	BSD090 messages
Visual indicators	Alarms Green LED off on cabinet power supply LED lit on PFTU Circuit breaker tripped (down) Remote alarm
User reports	Difficulty reported by attendant No ring on 500/2500-type telephones

Symptom:**Main circuit breaker off and all LEDs off**

All the LEDs in the system are off and the circuit breaker on the power supply in the cabinet is tripped. Use this procedure to clear the problem.

High room temperature or a power surge can shut down the system. Check for these external conditions and if present, correct them then reset the breaker.

You may need to replace:

- the NTMW11 power supply
- the NTMW01 SSC card (if the fault is in the main cabinet)
- the cooling fan in the top of the affected cabinet
- any one of the remaining circuit cards in the affected cabinet

Possible cause	Action
Thermal overload	Make sure nothing is blocking ventilation throughout the system. Allow the system to cool for a few minutes then reset the breaker. Make sure that the fan in the top of the cabinet is operating. If not, replace the fan. Check that the fan in the top of the cabinet is operating and is not obstructed by items left on top of the cabinet. Listen to determine if fan is operating. To further check or replace fan, remove top cover to gain access to the fan. See Figures 51 and 52. If the breaker trips, go to the next possible cause.
Defective circuit card in the cabinet	Unseat all the circuit cards in the cabinet except the power supply. Reset the breaker. If the breaker trips, the power supply is defective. Remove the existing power supply and install a new one. If the breaker does not trip, reinstall the circuit cards one-at-a-time until the breaker trips.

Figure 51
Location of top cover fasteners

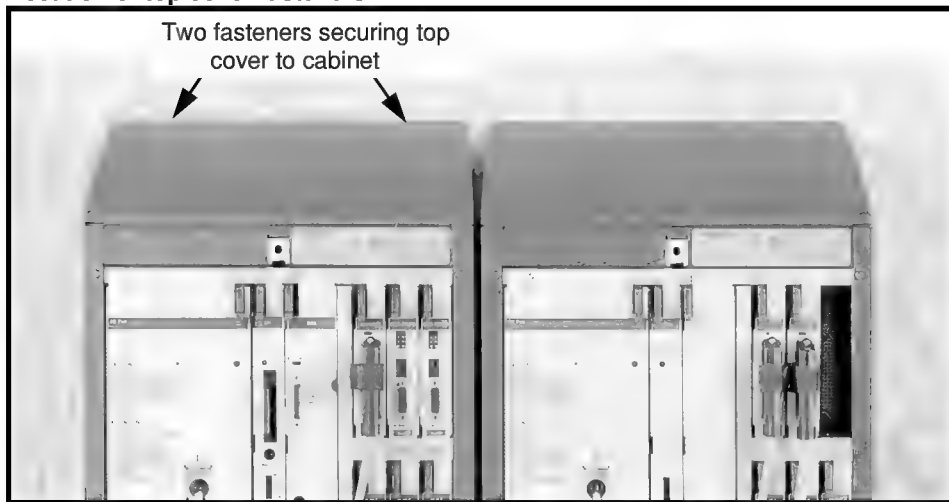
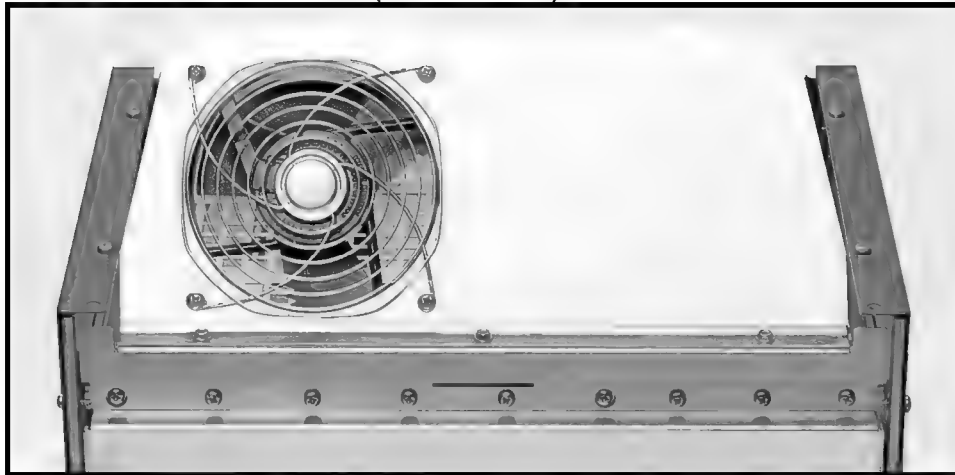


Figure 52
View of fan from rear of cabinet (cover removed)



Symptom:**Circuit breaker on the power supply in the cabinet is on but all LEDs in the cabinet are off**

All the LEDs in the cabinet are off but the circuit breaker on the Power Supply Unit in the cabinet is not tripped. Use this procedure to clear the problem.

You may need to replace the:

- NTMW11 power supply
- Main AC Power Supply Cord
- Uninterruptible Power Supply (UPS)

Possible cause	Action
Main Power Cord not connected	If the main power cord for the cabinet is unplugged, plug it in. Check both ends of the cord to make sure that it is also plugged in to the power supply unit. If the power cord is already plugged in, go to the next possible cause.
WARNING The following tests are performed on a live power connection.	
No power at outlet	With a meter or test lamp, test for power at the outlet. If there is no power at the outlet when AC power is supplied through a UPS unit, repair or replace the UPS following the manufacturer's instructions. If there is no power at the outlet when AC power is supplied through commercial service (not through a UPS), take the necessary steps to have the commercial power restored. If there is power at the outlet, go to the next possible cause.
Defective Main Power Cord	With a meter or test lamp, test the cabinet end of the main power cord (at the bottom of the Power Supply Unit in the cabinet) for power. If there is no power, replace the power cord. If there is power at the connections, go to the next possible cause.
Defective Power Supply Unit	Replace the NTMW11 Power Supply Unit.

Clearing Common Equipment faults

Common Equipment faults

Common Equipment (CE) functions perform system control and switching. Common Equipment, located on the NTMW01 SSC card, can include:

- CPU: Comprised of two processors. The main processor handles call processing, serial ports, and network traffic. The auxiliary processor handles card polling, power monitoring, tone generation, and control of a Digital Signal Processor (DSP) for tone detection.
- Fiber Expansion Daughter Board: provides 16 additional conference channels and access to expansion cabinet hardware
- Software Daughter Board: provides system software storage
- Ethernet controller: provides one port between the CPU and a Local Area Network (LAN)
- Serial Data Interface: provides three ports between the CPU and external devices
- Personal Computer Memory Card Industry Association (PCMCIA) interface: provides access for one Type III or two Type II PCMCIA card drives to allow software delivery or customer data storage
- Tone and Digit Switch: provides 30 channels of tone generation
- Conference: provides 32 channels, plus 16 more if the Fiber Expansion Daughter Board is equipped

Common Equipment faults can disable the CPU and stop call processing. In addition, other types of equipment (such as Peripheral Equipment) may not operate properly while there is a CE fault in the system.

Fault clearing procedures

[Table 69](#) lists Common Equipment (CE) fault indications. To clear faults, select the symptom listed in this section that most resembles the fault indications and go through the procedure for clearing each possible cause until the fault is fixed. Once the fault is corrected, disregard the remaining possible causes.

Clear any power faults before attempting to clear Common Equipment faults.

If the fault is not cleared after you have gone through each possible cause, check the most recent fault indications. Also check [“How to clear faults” on page 432](#) to see if another type of fault is indicated.

After the fault is corrected, go to [“Final maintenance procedure” on page 508](#) to completely restore normal operation.

Table 69
Common Equipment fault indications

Indicator	Possible indications
System messages	CCED messages CED messages CIOD messages HWR messages INI001, 002, 004, 005, 007 IOD006, 007, 060, 061, 291—297 NWS030, 102, 103, 142 SYS messages
Visual indicators	Major alarm on attendant consoles Red LED lit on NTMW01 SSC circuit card
User reports	Major alarm

ISDN and DTI faults

Fault locating and clearing procedures for 1.5 Mb ISDN or DTI related faults are contained in the *ISDN DTI/PRI Administration and Maintenance*.

Symptom:

Call processing stopped on the entire system

Call processing has stopped. Look up all system messages in the *Option 11C Compact Software Guide* and follow the instructions given. If the fault does not clear, use this procedure.

You may need to replace:

- NTMW11 Power Supply
- NTMW01 SSC card
- NTDK21 Software Daughter Board
- NTDK22 Fiber Daughter Board
- Main Cabinet

Possible cause	Action
Improperly installed NTDK21 Software Daughter Board	Unseat the NTMW01 SSC card. Unseat the Software Daughter Board. Reseat the Software Daughter Board. Ensure Daughter Board connector is fully seated. Reinsert the NTMW01 SSC circuit card.
Improperly installed NTDK22 Fiber Daughter Board	Unseat the NTMW01 SSC card. Unseat the Fiber Daughter Board. Reseat the Fiber Daughter Board. Ensure Daughter Board connector is fully seated. Reinsert the NTMW01 SSC circuit card.
Defective NTMW11 Power Supply in the main cabinet	Make sure the green LED on the NTMW11 Power Supply in the main cabinet is lit. If it is not lit, go to “Clearing power faults” on page 443 . If the power supply LED is lit, go to the next possible cause.
Initialization required	Press the manual initialize button on the faceplate of the NTMW01 SSC. If the system initializes, check all fault indicators and clear any faults indicated. If the system does not initialize, unseat the circuit cards in the shelf in the main cabinet (and in the expansion cabinet if equipped) one-at-a-time. If the system initializes, replace the last circuit card removed (it may be faulty). If the system will not initialize, go to the next possible cause.
—continued—	

Possible cause	Action
Defective NTMW01 SSC card	Replace the NTMW01 SSC circuit card with the original Daughter Boards installed on it. If the system does not recover, go to the next possible cause.
Defective NTDK22 Fiber Daughter Board	Unseat the NTMW01 SSC circuit card and replace the Fiber Daughter Board. Reinsert the NTMW01 SSC circuit card. If a sysload (SYSLOAD) occurs, check all fault indicators and clear any faults indicated. If the system will not reload, go to the next possible cause.
Defective NTDK21 Software Daughter Board	Unseat the NTMW01 SSC circuit card and replace the Software Daughter Board. Reinsert the NTMW01 SSC circuit card. Reinstall software from PCMCIA card as necessary. If the system will not reload, go to the next possible cause.
Defective backplane	Replace the cabinet.

Symptom:**Fault indicated on the NTMW01 SSC card, or Memory fault indicated**

The red LED is lit on the SSC card, or a memory fault is indicated. Look up all system messages in the *Option 11C Compact Software Guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

- NTMW01 SSC card
- NTDK21 Software Daughter Board
- NTDK22 Fiber Daughter Board

Possible cause	Action
Improperly installed NTDK21 Software Daughter Board	Power down the system, remove the NTMW01 SSC card. Unseat the Software Daughter Board and then reseat it. Reinsert the NTMW01 SSC card. Power up the system.
Improperly installed NTDK22 Fiber Daughter Board	Power down the system, remove the NTMW01 SSC card. Unseat the Fiber Daughter Board and then reseat it. Reinsert the NTMW01 SSC circuit card. Power up the system.
Defective NTMW01 SSC card	Replace the NTMW01 SSC card with the original daughter boards installed on it. Note: Reuse all daughter boards installed on the original NTMW01 SSC card. Call processing on the entire system will be interrupted while the NTMW01 SSC circuit card is being replaced. If the system does not recover, go to the next possible cause.
Defective NTDK21 Software Daughter Board	Unseat the NTMW01 SSC card and replace the Software Daughter Board. Note: Call processing on the entire system will be interrupted while the NTMW01 SSC card is unseated. Reinsert the NTMW01 SSC card. If the system will not reload, go to the next possible cause.
Defective NTDK22 Fiber Daughter Board	Unseat the NTMW01 SSC card and replace the Fiber Daughter Board. Note: Call processing on the entire system will be interrupted while the NTMW01 SSC circuit card is unseated. Reinsert the NTMW01 SSC circuit card.

Symptom:**Fault indicated on the Tone and Digit Switch**

The red LED is lit on the CPU circuit card, or a Tone and Digit Switch fault is indicated. Look up all system messages in the *Option 11C Compact Software Guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace the NTMW01 SSC card.

Possible cause	Action
Defective Tone and Digit Switch circuitry	Test the Tone and Digit Switch and (Digitone Receiver) on the NTMW01 SSC card by entering LD 34 DISX 0 and then ENLX 0 finally STAT 0. If the Digitone Receiver fails the test, replace the NTMW01 SSC card. Note: Reuse all daughter boards installed on the original NTMW01 SSC card. Call processing on the entire system will be interrupted while the NTMW01 SSC card is being replaced.

Symptom:**Fault indicated when trying to perform a data dump**

You are able to log onto the system but you get an error message when trying to perform a data dump.

Possible cause	Action
Corrupted Software Daughter Board (NTDK21)	Perform an EDD NBK command in LD 43 to restore the software cartridge.
Manual initialize button pressed when performing a backup using the Customer Configuration Backup and Restore feature.	While still in remote backup mode, issue an ENLT command.
Security failure during an upgrade.	Re-enter the keycodes. Note: Up to three invalid keycode may be entered. After the third invalid keycode, all changes are lost and the Setup Program returns to the main menu.

Clearing Network faults

Network faults

Network functions in the Option 11C Compact are an integral part of the NTMW01 SSC card. It provides speech path switching and transmit and receive signaling messages from the CPU. Network functions include:

- Conference/Tone and Digit Switch
- Digital switching and conferencing for the system
- Serial Data Interface
- Ethernet controller

Network faults can cause system initializations and disable conference capability or all terminal connections (such as trunks and telephones) on a card. Network faults can make functional Peripheral Equipment seem faulty.

Fault clearing procedures

Manual Continuity Tests can be used to isolate Network faults and Peripheral Equipment faults. See “LD 30” in the *Option 11C Compact software guide* for details on performing the tests.

[Table 70](#) lists common Network fault indications. To clear faults, select the symptom listed in this section that most resembles the fault indications and go through the procedure for clearing each possible cause until the fault is fixed. Once the fault is corrected, disregard the remaining possible causes.

Clear any power or Common Equipment faults before attempting to clear Network faults.

If the fault is not cleared after you have gone through each possible cause, check the most recent fault indications. Also check [“How to clear faults” on page 432](#) to see if another type of fault is indicated.

After the fault is corrected, go to [“Final maintenance procedure” on page 508](#) to completely restore normal operation.

Table 70
Network fault indicators

Indicator	Possible indications
System messages	CNF messages DTA, DTC, DTI messages ERR020, 120, 4060 INI003, 008—012 NWS101, 141, 201—204, 301, 401 OVD021, 022, 023, 031 SYS messages TDS messages
Visual indicators	Minor alarm on an attendant console Red LEDs lit or flashing on circuit cards
User reports	Minor alarm reported by attendant Users cannot transfer or conference Users cannot dial out on 500/2500-type telephones No dial tone at all sets; no display on digital sets

Symptom:**Disabled card indicated by OVD message**

An overload (OVD) message indicates a card disabled. All terminal connections on the card are disabled.

Test the card by entering:

LD 30

TEST

If the card tests “OK” the problem has cleared. If an “OVD” message appears after a few minutes, use this procedure.

Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Manual Continuity Tests can be used to isolate Network and Peripheral Equipment faults. See “LD 30” in the *Option 11C Compact software guide* for details on performing the tests.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace some of the following equipment:

- Peripheral Equipment (PE) circuit card
- Cabinet
- A0632902 Fiber Optic cable
- NTMW01 SSC card
- NTDK21 Software Daughter Board
- NTDK22 Fiber Daughter Board
- NTMW10 Fbr Rcvr (Fiber Receiver) card

Possible cause	Action
Defective cable	Isolate the feeder cable from the system.
Defective PE circuit card	Unseat the PE circuit card. Enable and test the card by entering LD 30 TEST If you receive an OVD message after a few minutes, go to the next possible cause. If you do not receive an OVD message after a few minutes, install a new PE circuit card in the slot. If an OVD message appears after the new circuit card is inserted, there is a fault on the terminal equipment (such as a telephone or console connected to the circuit card). See the appropriate section (such as "Clearing attendant console faults" on page 484) and fix the fault. (If the messages point to a particular TN, isolate that TN from the system.)
Defective terminal equipment	Check terminal equipment (such as attendant consoles and telephones) on the disabled card. If you find defective terminal equipment, see the appropriate section (such as "Clearing attendant console faults" on page 484) to fix the fault.
Defective NTMW10 Fbr Rcvr card if affected card is in Expansion cabinet	Replace the NTMW10 Fbr Rcvr. Note: Call processing for the Expansion cabinet will be interrupted while the Fbr Rcvr (Fiber Receiver) card is being replaced. Enable the fiber link by entering LD 135 ENL FIL 1 if the fault is in Expansion cabinet 1 If the fault remains replace the Fiber cable Enable the fiber link by entering LD 135 ENL FIL 1 if the fault is in Expansion cabinet 1
—continued—	

Possible cause	Action
	If the fault remains replace the Fiber Daughter Board NTDK22 Fiber Daughter Board on the NTMW01 SSC card. Note: Reuse the Software Daughter Board and the other Fiber Daughter Board, if equipped, attached to the original SSC card. Call processing on the entire system will be interrupted while the card is unseated. Enable the fiber link by entering LD 135 ENL FIL 1 if the fault is in Expansion cabinet 1 If the fault remains replace the NTMW01 SSC card.
Defective NTDK22 Fiber Daughter Board if affected card is in Expansion cabinet	Replace the Fiber Daughter Board on the NTMW01 SSC card. Note: Call processing on the entire system is interrupted while the NTMW01 SSC card is unseated. Enable the fiber link by entering LD 135 ENL FIL 1 If the fault remains replace the Fiber cable. Enable the fiber link by entering LD 135 ENL FIL 1 If the fault remains replace the NTMW10 Fbr Rcvr. Note: Call processing for the Expansion cabinet will be interrupted while the Fbr Rcvr (Fiber Receiver) card is being replaced. Enable the fiber link by entering LD 135 ENL FIL 1 If the fault remains replace the NTMW01 SSC card.
—continued—	

Possible cause	Action
Defective NTMW01 SSC card	Install a new NTMW01 SSC card. <i>Note:</i> Reuse the daughter boards attached to the original NTMW01 SSC card. Call processing on the entire system is interrupted while the SSC card is being replaced. Enable and test the card by entering LD 30 TEST Wait for an OVD message. If the card tests “OK”, the SSC circuit card was defective. If after a few minutes you receive an OVD message, and this system is not equipped with an expansion cabinet, the shelf backplane is defective. Replace the main cabinet. If this system is equipped with an expansion cabinet, go to the next possible cause.
Defective Expansion cabinet	Replace cabinet. Enable and test the card by entering LD 30 TEST

Symptom:**Card disabled without OVD message**

There is a system message indicating one or more cards are defective or disabled, but there is no overload (OVD) message indicating disabled equipment. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

- Peripheral Equipment (PE) circuit card
- The cabinet
- A0632902 Fiber Optic cable
- NTMW01 SSC card
- NTDK21 Software Daughter Board
- NTDK22 Fiber Daughter Board
- NTMW10 Fbr Rcvr (Fiber Receiver) card

Possible cause	Action
PE card circuitry latched	Disable card, reseal card and enable the card. If the fault persists, go to the next possible cause.
Defective PE circuit card	Replace the PE circuit card. Enable and test the card by entering LD 30 TEST If the fault persists, go to the next possible cause.
Defective terminal equipment	Check all terminals (such as telephones or trunks) connected to the PE circuit card. Enable and test the card by entering LD 30 TEST If the fault is not located, go to the next possible cause.
25-pair cable seating	Check for obstructions, clear if any and reseal cable. If the fault persists, go to the next possible cause.
—continued—	

Possible cause	Action
Defective NTMW10 Fbr Rcvr (Fiber Receiver) card if affected card is in Expansion cabinet	Replace the NTMW10 Fbr Rcvr. Note: Call processing for the Expansion cabinet is interrupted while the Fbr Rcvr card is being replaced. Enable the fiber link by entering LD 135 ENL FIL 1 If the fault remains replace the Fiber cable. Enable the fiber link by entering LD 135 ENL FIL 1 If the fault remains replace the NTDK22 Fiber Daughter Board on the NTMW01 SSC circuit card. Note: Reuse the Software Daughter Board and the other Fiber Daughter Board, if equipped, attached to the original NTMW01 SSC circuit card. Call processing on the entire system will be interrupted while the NTMW01 SSC circuit card is unseated. Enable the fiber link by entering LD 135 ENL FIL 1 If the fault remains replace the NTMW01 SSC card.
—continued—	

Possible cause	Action
Defective NTDK22 Fiber Daughter Board if affected card is in Expansion cabinet	Replace the Fiber Daughter Board on the NTMW01 SSC card. Note: Reuse the Software Daughter Board attached to the original SSC card. Call processing on the entire system is interrupted while the SSC card is unseated. Enable the fiber link by entering LD 135 ENL FIL 1 If the fault remains replace the Fiber cable. Enable the fiber link by entering LD 135 ENL FIL 1 If the fault remains replace the NTMW10 Fbr Rcvr. Note: Call processing for the Expansion cabinet is interrupted while the Fbr Rcvr card is being replaced. Enable the fiber link by entering LD 135 ENL FIL 1 If the fault remains replace the NTMW01 SSC card.
—continued—	

Possible cause	Action
Defective NTMW01 SSC	Install a new NTMW01 SSC card. <i>Note:</i> Reuse the daughter board attached to the original SSC card. Call processing on the entire system is interrupted while the SSC circuit card is being replaced. Enable and test the card by entering LD 30 TEST If the card tests “OK”, the NTMW01 SSC was defective. If after a few minutes the problem recurs, and this system is not equipped with an expansion cabinet, the shelf backplane is defective. Replace the main cabinet. If this system is equipped with an expansion cabinet, go to the next possible cause.
Defective Expansion cabinet	Replace cabinet if the affected PE card is in this cabinet. Enable and test the card by entering LD 30 TEST If problem persists got to next possible cause
Defective Main cabinet	Replace cabinet.

Symptom:
Problems with transferring, placing conference calls, or Music-on-Hold

Several users cannot transfer or place conference calls, or calls do not receive Music-on-Hold. A circuit card that provides conference capability may be disabled. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

- NTMW01 SSC card
- NTDK22 Fiber Daughter Board
- Telephone

Possible cause	Action
Defective NTDK22 Fiber Daughter Board	If a fault is indicated on conference loop 31, replace the Fiber Daughter Board. <i>Note:</i> Call processing on the entire system is interrupted while the NTMW01 SSC is unseated.
Defective NTMW01 SSC	If there are no messages indicating a fault on any conference loop, test each conference loop in the system by entering LD 38 CNFC loop ("loop" represents the conference loop number 29, 30, or 31) If the conference loop is disabled, try to enable it by entering LD 38 ENLL loop ("loop" represents the conference loop number 29, 30, or 31) If a fault is indicated on conference loop 31, replace the Fiber Daughter Board for Expansion. If a fault is indicated on conference loop 29 or 30, replace the NTMW01 SSC card. <i>Note:</i> Reuse the daughter boards installed on the original SSC card. Call processing on the entire system is interrupted while the SSC card is being replaced. If no faults are detected on any conference loop, go to the next possible cause.
Defective telephone	Check the telephone with this problem. Make sure that the feature is properly assigned to the telephone and the telephone is not defective.

Symptom:
Problems placing calls on 2500-type telephones and some trunks

Several users of 2500-type telephones report trouble placing calls. Other users may report trouble dialing on certain trunks. A Digitone Receiver may be disabled. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace the NTMW01 SSC card.

Possible cause	Action
Disabled Digitone Receiver	Check for disabled Digitone Receiver TNs by entering LD 34 STAT If any are disabled, try to enable them by entering ENLX c u ("c u" represents card and unit number) If the Digitone Receiver will not enable, go to the next possible cause.
Defective Digitone Receiver	Test the Digitone Receiver on the NTMW01 SSC card by entering DISX 0 and then ENLX 0. If the Digitone Receiver fails the test, replace the SSC circuit card. If the Digitone Receiver passes the test, go to the next possible cause.
Telephone problem	Check the telephone with this problem. Make sure that the class-of-service (DTN) is properly assigned to the telephone and the telephone is not defective.

Clearing Peripheral Equipment faults

Peripheral Equipment faults

Peripheral Equipment (PE) provides the interface between Network switching and terminal equipment (such as trunks, telephones, data sets, and attendant consoles). Peripheral Equipment faults can disable network and terminal equipment.

Fault clearing procedures

Manual Continuity Tests can be used to isolate Peripheral Equipment faults.

System messages with the mnemonic BSD090 contain fiber interface related information. They identify the link and its state. [Table 67](#) shows the Fiber Interface messages output and their meaning.

Table 71
Fiber Interface messages

BSD655 message	Problem
BSD090 FIBER 1 LINK DOWN	Expansion cabinet Fiber Interface Link is down.
BSD090 FIBER 1 LINK ESTABLISHED	Expansion cabinet Fiber Interface Link is reestablished.

[Table 72](#) lists common Peripheral Equipment (PE) fault indications (many other system messages may be generated). To clear faults, select the symptom listed in this section that most resembles the fault indications and go through the procedure for clearing each possible cause until the fault is fixed. Once the fault is corrected, disregard the remaining possible causes.

Clear any power or Common Equipment faults before attempting to clear peripheral equipment faults.

If the fault is not cleared after you have gone through each possible cause, check the most recent fault indications. Also check [“How to clear faults” on page 432](#) to see if another type of fault is indicated.

After the fault is corrected, go to [“Final maintenance procedure” on page 508](#) to completely restore normal operation.

Table 72
Peripheral Equipment fault indicators

Indicator	Possible indications
Sample system messages	BSD655 FIBER 1 LINK DOWN ERR4062 NWS301, 401, 501 OVD001—010, 024
Visual indicators	Red LEDs lit on circuit cards
User reports	Trouble with calls on attendant console Trouble with calls on telephones

ISDN and DTI faults

Fault locating and clearing procedures for 1.5 Mb ISDN, DTI or PRI related faults are contained in the *ISDN PRI Administration and Maintenance*.

Symptom:**Disabled Peripheral Equipment circuit card**

A Peripheral Equipment (PE) circuit card is disabled, the red LED the PE circuit card is lit, or two or more units on a circuit card are disabled. There is a system message indicating the circuit card or units on it are disabled. Only one PE circuit card is affected.

Look up all system messages in the “*Option 11C Compact software guide*” and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

- Peripheral Equipment (PE) circuit card
- NTMW01 SSC card
- NTDK22 Fiber Daughter Board
- NTMW10 Fbr Rcvr (Fiber Receiver) card

Possible cause	Action
Defective PE circuit card	Replace the affected circuit card. Enable the circuit card by entering LD 32 ENLC c ("c" represents the card number) Test the card by entering LD 30 UNTT c ("c" represents the card number)
Defective NTMW10 Fbr Rcvr card if affected card is in Expansion cabinet	<i>Note:</i> Call processing for the Expansion cabinet is interrupted while the Fbr Rcvr card is being replaced. Disable the Expansion cabinet by entering: LD 32 DISS 1 Disable the Fiber Link by entering: LD 135 DIS FIL 1 Replace the Fbr Rcvr card. Perform Local and Remote Loop-back tests on the link by entering: LD 135 LLBK FIL 1 RLBK FIL 1 Enable the Fiber Link by entering: LD 135 ENL FIL1 Enable the Expansion cabinet by entering: LD 32 ENLS 1
—continued—	

Possible cause	Action
Defective NTDK22 Fiber Expansion Daughter Board if affected card is in Expansion cabinet	Replace the Fiber Expansion Daughter Board on the NTMW01 SSC card. Note: Call processing for the entire system is interrupted while the SSC circuit card is unseated. Reuse the Software Daughter Board attached to the original SSC card. Enable the circuit card by entering LD 32 ENLC c (“c” represents the card number) Test the circuit card by entering LD 30 TEST (the TEST command ensures that all circuit cards are re-enabled in the expansion cabinet)
Defective NTMW01 SSC	Replace the NTMW01 SSC card. Note: Call processing for the entire system is interrupted while the SSC card is being replaced. Reuse the Software Daughter Board attached to the original SSC circuit card. Test the card by entering Test the circuit card by entering LD 30 UNTT c (“c” represents the card number)

Symptom:

More than one Peripheral Equipment circuit card disabled

More than one Peripheral Equipment circuit card, or two or more units on different circuit cards, are disabled in the same cabinet. There is a system message indicating the circuit cards or units on the circuit cards are disabled. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Manual Continuity Tests can be used to isolate Intelligent Peripheral Equipment faults. See “LD 30” in the *Option 11C Compact software guide* for details on performing the tests.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

- A0632902 Fiber Optic Cable
- NTMW01 SSC card
- NTDK22 Fiber Daughter Board
- NTMW10 Fbr Rcvr (Fiber Receiver) card

Possible cause	Action
If the PE circuit card is in an expansion cabinet, the fiber optic cable may be defective	Note: Call processing for the Expansion cabinet is interrupted while the Fbr Rcvr card is being replaced. Disable the Expansion cabinet by entering: LD 32 DISS 1 Disable the Fiber Link by entering: LD 135 DIS FIL 1 Replace the fiber optic cable. Perform Local and Remote Loop-back tests on the link by entering: LD 135 LLBK FIL 1 RLBK FIL 1 Enable the Fiber Link by entering: LD 135 ENL FIL 1 Enable the Expansion cabinet by entering: LD 32 ENLS 1 Enable the circuit card by entering LD 32 ENLC c ("c" represents the card number) Test the circuit card by entering LD 30 TEST (the TEST command ensures that all circuit cards are re-enabled in the expansion cabinet)
—continued—	

Possible cause	Action
Fiber link problems	Replace the Fbr Rcvr (Fiber Receiver) card or Fiber Expansion Daughter Board especially if BSD655 messages have been output indicating there is a problem.
Defective PE circuit card	Replace the affected circuit cards. Enable the circuit card by entering LD 32 ENLS x (x represents the shelf number; 0 for the main cabinet, 1 for the expansion cabinet.) Test the circuit card by entering LD 30 TEST
Defective NTMW01 SSC	Replace the NTMW01 SSC card. Note: Call processing for the entire system is interrupted while the SSC circuit card is being replaced. Reuse the daughter boards attached to the original SSC circuit card. Test the circuit cards by entering LD 30 TEST

Clearing trunk faults

Trunk faults

Trunk circuit cards provide the interface between the system and Central Office (CO) trunks, or between PBXs. The maintenance telephone can be used to test trunks. The Universal Trunk card provides four trunk units, each of which can be connected to a trunk configured to operate as one of the following:

- Central Office trunk
- Direct Inward Dialing (DID) trunk
- Two-way Tie, Dial Repeating (2DR)
- Two-way Tie, Outgoing Automatic Incoming Dial (OAID) trunk
- Recorded Announcement (RAN) trunk
- Music trunk
- Paging trunk

Trunk faults can cause problems (such as noise) on outside calls and can keep calls from entering or leaving the system.

Fault clearing procedures

Manual Continuity Tests can be used to isolate Network and Peripheral Equipment faults. See “LD 30” in the *Option 11C Compact software guide* for details on performing the tests.

[Table 73](#) lists common trunk fault indications. To clear faults, select the symptom listed in this section that most resembles the fault indications and go through the procedure for clearing each possible cause until the fault is fixed. Once the fault is corrected, disregard the remaining possible causes.

Clear any power or Common Equipment faults before attempting to clear trunk faults.

If the fault is not cleared after you have gone through each possible cause, check the most recent fault indications. Also check [“How to clear faults” on page 432](#) to see if another type of fault is indicated.

After the fault is corrected, go to [“Final maintenance procedure” on page 508](#) to completely restore normal operation.

Table 73
Trunk fault indicators

Indicator	Possible indications
System messages	ERR090, 220, 270 OVD001—010 TRK messages
Visual indicators	Red LED lit on trunk circuit card
User reports	Users have trouble with a specific trunk Callers report continuous ringing Trouble with calls on console and/or telephones

ISDN and DTI faults

Fault locating and clearing procedures for 1.5 Mb ISDN or DTI related faults are contained in the *ISDN DTI/PRI Administration and Maintenance*.

Symptom:**Trunk cannot make or receive calls (OVD message received)**

You cannot make or receive calls over a trunk and an overload (OVD) system message is received. The message indicates only this trunk has been disabled. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Manual continuity tests can be used to isolate faults to Peripheral Equipment. See “LD 30” in the *Option 11C Compact software guide* for details on performing the tests.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

- Universal Trunk circuit card: NTMW07
- NTMW01 SSC card
- Trunk equipment (such as music source or paging equipment)

Possible cause	Action
Defective trunk circuit card	Hardware disable then re-enable the circuit card to initiate a self-test. If the test fails, replace the circuit card. If the test passes, follow the procedure below. Disconnect the wiring between the circuit card and the cross-connect terminal. Enable the TN by entering LD 32 ENLU c u ("c u" represents card and unit numbers) Wait for an OVD message. If you receive an OVD message, replace the circuit card. If you do not receive an OVD message, reconnect the wiring and go to the next possible cause.
Defective wiring	At the main cross-connect terminal, disconnect the wiring to the CO or other trunk equipment (such as a music source or paging equipment). Enable the TN and wait for an OVD message. If you receive an OVD message, repair or replace the wiring to the PE card. If there is no OVD message, repair or replace the wiring from the cross-connect terminal to the trunk. If the trunk circuit card still will not enable or there is still a trunk problem, reconnect the wiring and go to the next possible cause.
	Enable the TN by entering LD 32 ENLU c u ("c u" represents card and unit numbers) Wait for an OVD message. If you receive an OVD message, replace the circuit card. If you do not receive an OVD message, reconnect the wiring and go to the next possible cause.
—continued—	

Possible cause	Action
Defective trunk equipment	Make sure the CO equipment or other trunk equipment is not defective. If there is no problem with this equipment, go to the next possible cause.
Defective NTMW01 SSC card	Use the attendant console to seize trunks and audibly test for dial tone and outpulsing, or use a maintenance telephone and enter LD 36 TRK c u (“c u” represents card and unit numbers) Note: See the <i>Option 11C Compact software guide</i> for information on using this test. If you do not hear outpulsing or tones, replace the NTMW01 SSC.

Symptom:

Trunk cannot make or receive calls (no OVD message)

You cannot make or receive calls over a trunk, but there is no overload (OVD) or other system message showing the TN for this trunk is defective or has been disabled. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Manual continuity can be used to isolate faults to Peripheral Equipment. See “LD 30” in the *Option 11C Compact software guide* for details on performing the tests.

Trunk connections from the main frame to the Peripheral Equipment can be checked with a butt-in set or test set. Check the trunk wiring at the entry point for dial tone and progress toward the PE.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

- Trunk circuit card: NTMW07
- NTMW01 SSC card
- Trunk equipment (such as music source or paging equipment)

Possible cause	Action
Defective trunk equipment	Make sure the CO equipment or other trunk equipment is not defective. If there is no problem with this equipment, go to the next possible cause.
Disabled or defective TN	Test the TN by entering LD 30 UNTT c u (“c u” represents card and unit numbers) Test other TNs by entering TEST If the test fails, replace the indicated item and test again.
Defective trunk circuit card	Hardware disable then re-enable the circuit card to initiate a self-test. If the test fails, replace the circuit card. If the test passes, go to the next possible cause.
Defective wiring	At the main cross-connect terminal, disconnect the wiring to the CO or other trunk equipment. Enable the TN and wait for an OVD message. If you receive an OVD message, repair or replace the wiring to the PE shelf. If there is no OVD message, repair or replace the wiring from the cross-connect terminal to the telephone. If the trunk circuit card still will not enable or there is still a trunk problem, reconnect the wiring and go to the next possible cause.
—continued—	

Possible cause	Action
Defective NTMW01 SSC card	Use the attendant console Barge-in to seize trunks and audibly test for dial tone and outpulsing, or use a maintenance telephone and enter LD 36 TRK c u ("c u" represents card and unit numbers) Note: See the <i>Option 11C Compact software guide</i> for information on using this test. If you do not hear outpulsing or tone replace the NTMW01 SSC card.
Excessive traffic in the system	Additional trunk circuit cards may be required to handle the traffic in the system.

Clearing attendant console faults

Attendant console faults

Components that can cause an attendant console fault are:

- the console itself or add-on units
- the console power supply
- the building wiring
- the cross-connect from the console to the line circuit
- the unit on the peripheral line circuit card
- the peripheral line circuit card
- the ringing generator
- the cabinet power supply

If more than one attendant console is affected, look for connections such as:

- they are on the same line circuit card
- there is a problem with ringing or tones

Use the following software programs to isolate attendant console faults:

- LD 31 to test sets and consoles
- LD 30 to perform signaling and continuity tests

Fault clearing procedures

[Table 74](#) lists common attendant console fault indications. To clear faults, select the symptom listed in this section that most resembles the fault indications then go through the procedure for clearing each possible cause until the fault is fixed. Once the fault is corrected, disregard the remaining possible causes.

Clear any power or Common Equipment faults before you try to clear attendant console faults.

If the fault is not cleared after you have gone through each possible cause, check the most recent fault indications. Also check [“How to clear faults” on page 432](#) to see if another type of fault is indicated.

After the fault is corrected, go to [“Final maintenance procedure” on page 508](#) to completely restore normal operation.

Table 74
Common attendant console fault indicators

Indicator	Possible indications
System messages	
Visual indicators	Red LED lit on associated circuit cards
User reports	Trouble with calls Trouble with equipment (such as handset, headset, or display)

Symptom:

Console cannot make or receive calls (OVD message received)

The attendant console cannot make or receive calls. There is an OVD message indicating a TN for the attendant console has been disabled. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

- Attendant console
- Peripheral Equipment (PE) circuit card associated with the console
- Common Equipment, Peripheral Equipment

Possible cause	Action
PE card circuitry latched	Disable card, reseal card and enable the card If the fault persists, go to the next possible cause.
Defective PE circuit card	Software disable the TN indicated by the OVD message by entering LD 32 DISU c u ("c u" represents card unit number) Disconnect the wiring between the PE circuit card and the cross-connect terminal. Re-enable the TN by entering ENLU c u ("c u" represents card unit number) Wait for an OVD message If you receive a message indicating a problem with the circuit card or unit, replace the circuit card. If you do not receive a message indicating a problem with the circuit card or unit, reconnect the wiring and go to the next possible cause.
Defective console	Disable the TN. Disconnect the wiring from the console to the jack. Re-enable the TN and wait for an OVD message. If you do not receive an OVD message, replace the console. If you receive an OVD message, reconnect the wiring and go to the next possible cause.
Defective wiring	Disable the TN. Disconnect the wiring between the console and the cross-connect terminal. Re-enable the TN and wait for an OVD message. If you do not receive an OVD message, replace or repair the wiring between the console and the cross-connect terminal. If you receive an OVD message, replace or repair the wiring between the PE shelf and the cross-connect terminal.

Symptom:

Console cannot make or receive calls (no OVD message)

The attendant console cannot make or receive calls. There is no OVD message. There may be other system messages indicating the TN for this console is defective or has been disabled. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up messages as you perform this procedure.

Possible cause	Action
No power to console	Check the power supply and wiring to see that the console is powered up. If there is a power supply problem, correct it. If there is no power problem, go to the next possible cause.
Defective console	Test the console by entering LD 31 (See the <i>Option 11C Compact software guide</i> for information on testing consoles with LD 31.) If the console fails the test, replace it. If the console passes the test, go to the next possible cause.
—continued—	
Console connected to wrong TNs	Check the cross-connect terminal to make sure the console is connected to the correct TNs. If the console is not connected correctly, fix the wiring. If the console is connected correctly, go to the next possible cause.
Defective wiring	Make sure wiring is properly connected and wires are not interchanged, crossed, or grounded Check the wiring between the console and the cross-connect terminal Check the wiring between the Peripheral Equipment shelf and the cross-connect terminal If there is a wiring problem, correct it.

Symptom:**Indicator or digit display not functioning properly**

The attendant console operates, but some LCD indicators or digit displays are not functioning properly. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

Possible cause	Action
Disconnected or defective power supply	Make sure the required power supplies to the attendant console are connected and are not defective. If there is still a console problem, go to the next possible cause.
Disabled TN	Software disable then re-enable each TN by entering LD 32 DISU c u ENLU c u (“c u” represents card and unit number) Test other TNs by entering LD 30 UNTT c u Test other TNs by entering TEST If there is still a console problem, go to the next possible cause.
Feature not assigned	Make sure the feature or the indicator is assigned in software. If there is still a console problem, go to the next possible cause.
Defective console	Test the console by entering LD 31 (See the <i>Option 11C Compact software guide</i> for information on testing consoles with LD 31.) If the console fails the test, replace it.

Symptom:

Operator cannot hear or be heard properly

The attendant console operates, but the user cannot hear or be heard properly. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

Possible cause	Action
Defective headset or handset	Make sure the handset or headset is plugged into the correct jack on the console. Try another handset or headset. If the test equipment works, replace the equipment. If there is still a console problem, go to the next possible cause.
Defective console	Test the console by entering LD 31 (See the <i>Option 11C Compact software guide</i> for information on testing consoles with LD 31.) If the console fails the test, replace it. If the console passes the test, go to the next possible cause.
Defective Peripheral Equipment circuit card	Software disable each TN by entering LD 32 DISU c u (“c u” represents card and unit number) Disconnect the wiring between the PE circuit card and the cross-connect terminal. Re-enable and test each TN by entering ENLU c u Wait for an OVD message. If you receive a message indicating a problem with the circuit card or unit, replace the circuit card. If you do not receive a message indicating a problem with the circuit card or unit, reconnect the wiring and go to the next possible cause.
—continued—	

Possible cause	Action
Defective wiring to console	Make sure wiring is properly connected and wires are not interchanged, crossed, or grounded Check the wiring between the console and the cross-connect terminal Check the wiring between the PE shelf and the cross-connect terminal If there is a wiring problem, correct it.

Clearing telephone faults

This section describes how to clear telephone faults.

Telephone faults

Components that can cause a telephone fault are:

- the telephone itself or add-on units
- the telephone power supply
- the building wiring
- the cross-connect from the telephone to the line circuit
- the unit on the peripheral line circuit card
- the peripheral line circuit card
- the ringing generator
- the cabinet power supply

If more than one telephone is affected, look for connections such as:

- they are on the same line circuit card
- there is a problem with ringing or tones

Use the following software programs and tests to isolate telephone faults:

- LD 30 to perform signaling tests
- LD 31 to test sets and consoles

Fault clearing procedures

[Table 75](#) lists common telephone fault indications. To clear faults, select the symptom listed in this section that most resembles the fault indications and go through the procedure for clearing each possible cause until the fault is fixed. Once the fault is corrected, disregard the remaining possible causes.

Clear any power or Common Equipment faults before attempting to clear telephone faults.

If the fault is not cleared after you have gone through each possible cause, check the most recent fault indications. Also check [“How to clear faults” on page 432](#) to see if another type of fault is indicated.

After the fault is corrected, go to [“Final maintenance procedure” on page 508](#) to completely restore normal operation.

Table 75
Telephone fault indicators

Indicator	Possible indications
System messages	• ERR500 • MWL500 • NWS501 • OVD001—010
Visual indicators	• Red LED lit on associated circuit cards
User reports	• Trouble with calls • Trouble with equipment (such as handset or add-on module)

Symptom:**Telephone cannot make or receive calls (OVD message received)**

The telephone cannot make or receive calls. There is an OVD message indicating the TN for only this telephone has been disabled. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

- Peripheral Equipment (PE) circuit card
- Telephone
- Wiring between the cross-connect terminal and the telephone
- Wiring between the Peripheral Equipment shelf and the telephone

Possible cause	Action
Defective PE circuit card	Software disable the TN indicated by the OVD message by entering LD 32 DISU c u ("c u" represent card and unit number) Disconnect the wiring between the PE circuit card and the cross-connect terminal. Re-enable the TN by entering ENLU c u Wait for an OVD message. If you receive a message indicating a problem with the circuit card or unit, replace the circuit card. If you do not receive a message indicating a problem with the circuit card or unit, reconnect the wiring and go to the next possible cause.
Defective telephone	If the telephone is a Meridian Digital Telephone, enter LD 32 IDU c u If there is no response, replace the telephone. If there is an appropriate response, continue this procedure. Disable the telephone TN. Disconnect the wiring from the telephone to the jack. Re-enable the TN and wait for an OVD message. If you do not receive an OVD message, replace the telephone. If you receive an OVD message, reconnect the wiring and go to the next possible cause.
—continued—	

Possible cause	Action
Defective wiring	Disable the TN. Disconnect the wiring between the telephone and the cross-connect terminal. Re-enable the TN and wait for an OVD message. If you do not receive an OVD message, replace or repair the wiring between the telephone and the cross-connect terminal. If you do not receive an OVD message, replace or repair the wiring between the telephone and the cross-connect terminal. If there is still a telephone problem, reconnect all wiring and go to the next possible cause.
Defective backplane	Disable the TN. Unseat the affected PE circuit card. Re-enable the TN and wait for an OVD message. If you receive an OVD message, replace the cabinet.

Symptom:**Telephone cannot make or receive calls (no OVD message)**

The telephone cannot make or receive calls. There is no OVD message or other system message indicating the TN for this telephone is defective or disabled. There may or may not be dial tone when the handset is unhooked. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

Possible cause	Action
No power to digital telephone	Check the power supply (if one is required) and make sure it is not defective. If there is a power supply problem, correct it. If there is no problem with the power supply, go to the next possible cause.
Telephone not connected properly	Check the cross-connect terminal to make sure the telephone is connected to the correct TN. If the telephone is not connected correctly, fix the wiring. If the telephone is connected correctly, go to the next possible cause.
Disabled TN	Software disable then re-enable the telephone TN by entering LD 32 DISU c u ENLU c u ("c u" represents card and unit number) Test other TNs by entering LD 30 UNTT c u Test other TNs by entering TEST If there is still a telephone problem, go to the next possible cause.
—continued—	

Possible cause	Action
Defective telephone	Disconnect the telephone from the jack. Plug in another telephone of the same type. If the replacement telephone works, replace the telephone you removed. If the replacement telephone does not work, reconnect the original telephone and go to the next possible cause. Note: If the telephone is a Meridian Digital Telephone, enter LD 32 IDU c u If there is no response, replace the telephone.
Defective wiring	Make sure wiring is properly connected and wires are not interchanged, crossed, or grounded. Check the wiring between the telephone and the cross-connect terminal. Check the wiring between the PE shelf and the cross-connect terminal. If there is a wiring problem, correct it.

Symptom:

One end cannot hear or cannot be heard

The person at the far end can hear you but you cannot hear them or the person at the far end cannot hear you but you can hear them. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

- Peripheral Equipment (PE) circuit card
- Telephone handset
- Telephone

- Wiring to the telephone

Possible cause	Action
Fault on other equipment	Check with the user to determine if the fault is present only on • certain types of calls (such as on a paging trunk or a Tie trunk) • calls to a specific location • calls to a specific telephone or other piece of equipment (such as a modem or Fax machine) If the fault occurs only with certain calls, take the appropriate action. If the fault occurs on all calls, go to the next possible cause.
Defective handset	Check the receiver or transmitter in the handset. If one is defective, replace the handset or, if necessary, the telephone.
Defective telephone	Disconnect the telephone from the jack. Plug in another telephone of the same type. If the replacement telephone works, replace the telephone you removed. If the replacement telephone does not work, reconnect the original telephone and go to the next possible cause. Note: If the telephone is a Meridian Digital Telephone, enter LD 32 IDU c u If there is no response, replace the telephone.
—continued—	

Possible cause	Action
Defective PE circuit card	Software disable the telephone TN by entering LD 32 DISU c u ("c u" represents card and unit number) Disconnect the wiring between the PE circuit card and the cross-connect terminal. Re-enable and test the TN by entering ENLU c u Wait for an OVD message. If you receive a message indicating a problem with the circuit card or unit, replace the circuit card. If you do not receive a message indicating a problem with the circuit card or unit, reconnect the wiring and go to the next possible cause.
Defective wiring to telephone	Make sure wiring is properly connected and wires are not interchanged, crossed, or grounded. Check the wiring between the telephone and the cross-connect terminal. Check the wiring between the PE shelf and the cross-connect terminal. If there is a wiring problem, correct it.

Symptom:

Noise or low volume on all calls

There is noise on the line on all calls or the volume is lower than usual on all calls. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

- Peripheral Equipment (PE) circuit card
- Telephone

- Wiring to the telephone

Possible cause	Action
Defective handset	Replace handset If problem is not cleared, go to the next possible cause.
Defective wiring	Make sure wiring is properly connected and wires are not interchanged, crossed, or grounded. Check the wiring between the telephone and the cross-connect terminal. Check the wiring between the PE shelf and the cross-connect terminal. If there is a wiring problem, correct it. If there is no problem with the wiring, go to the next possible cause.
Defective telephone	Disconnect the telephone from the jack. Plug in another telephone of the same type. If the replacement telephone works, replace the telephone you removed. If the replacement telephone does not work, reconnect the original telephone and go to the next possible cause. If the telephone is a Meridian Digital Telephone, enter LD 32 IDU c u If there is no response, replace the telephone.
Defective PE circuit card	Software disable the telephone TN by entering LD 32 DISU c u ("c u" represents card and unit number) Disconnect the wiring between the PE circuit card and the cross-connect terminal. Re-enable and test the TN by entering ENLU c u Wait for an OVD message. If you receive a message indicating a problem with the circuit card or unit, replace the circuit card. If you do not receive a message indicating a problem with the circuit card or unit, reconnect the wiring and go to the next possible cause.

Symptom:**Defective indicator, digit display, or component**

The telephone can place and receive calls, but one or more LED or LCD indicator, a digit display, or a component (such as a handsfree unit) is not working. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

- Power supply to telephone
- Peripheral Equipment (PE) circuit card
- Telephone

Possible cause	Action
Telephone has incorrect software parameters	Disconnect then reconnect power to the telephone to force a reset and parameter download. If the fault is not cleared, go to the next possible cause.
No power to digital telephone	Check the power supply (if one is required) and make sure it is not defective. If there is a power supply problem, correct it. If there is no problem with the power supply, go to the next possible cause.
—continued—	

Possible cause	Action
Defective telephone	Disconnect the telephone from the jack. Plug in another telephone of the same type. If the replacement telephone works, replace the telephone you removed. If the replacement telephone does not work, reconnect the original telephone and go to the next possible cause. If the telephone is a Meridian Digital Telephone, enter LD 32 IDU c u If there is no response, replace the telephone.
Feature not assigned	Make sure the feature or the indicator is assigned in software (see the <i>Option 11C Compact software guide</i>). If there is still a telephone problem, go to the next possible cause.

Symptom:

Defective feature

The telephone can make and receive calls, but one or more of its features (such as call transfer or ring again) is not working. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

Possible cause	Action
Feature not assigned	Make sure the feature or the indicator is assigned in software (see the <i>Option 11C Compact input/output guide</i>). If there is still a console problem, go to the next possible cause.
Defective telephone	Disconnect the telephone from the jack. Plug in another telephone of the same type. If the replacement telephone works, replace the telephone you removed. If the replacement telephone does not work, reconnect the original telephone and go to the next possible cause. If the telephone is a Meridian Digital Telephone, enter LD 32 IDU c u If there is no response, replace the telephone.

Symptom:

Defective add-on module

The telephone can make and receive calls, but an add-on module connected to it is not working. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

- Add-on module
- Data option circuit card
- Power supply for add-on module

Possible cause	Action
Defective power supply for add-on module	If the add-on module requires a separate power supply, make sure it is properly connected. If there is still a telephone problem, go to the next possible cause.
Defective add-on module	Replace the add-on module.
Defective data option circuit card	If the fault is with a data add-on module, replace the data option circuit card.

Symptom:

Cannot dial from 2500-type telephone

A user cannot dial from a 2500-type telephone. The condition may exist on more than one telephone and may be intermittent. The telephone may occasionally experience a “no dial tone” condition. Calls from other types of sets are not affected. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

- NTMW01 SSC card
- Telephone
- Wiring to the telephone

Possible cause	Action
Incorrectly programmed	To determine the correct Class Of Service (CLS) use LD 20 PRT If CLS is DIP, change to DTN using LD 10
Defective telephone	If only one telephone is affected, replace it. If there is still a telephone problem, go to the next possible cause.
Defective PE circuit card	Replace the affected circuit cards. Enable the circuit card by entering LD 32 ENLS s (s represents the shelf number; 0 for the main cabinet, 1 for the expansion cabinet.) Test the circuit card by entering LD 30 TEST
Defective wiring	If only one telephone is affected, make sure wiring is properly connected and wires are not interchanged, crossed, or grounded Check the wiring between the telephone and the cross-connect terminal Check the wiring between the PE shelf and the cross-connect terminal If there is a wiring problem, correct it. If there is still a telephone problem, go to the next possible cause.
Defective Digitone Receiver	If the condition is intermittent or more than one telephone is affected, test the Digitone Receivers in the NTMW01 SSC card by entering LD 34 DIS 0 and ENL 0 Replace the NTMW01 SSC if it fails the test. If there is still a telephone problem, go to the next possible cause.
Excessive Digitone traffic	

Symptom:

No ring on 500- and 2500-type telephones

Both 500- and 2500-type telephones do not ring. One or several sets in the same cabinet are experiencing the problem. Look up all system messages in the *Option 11C Compact software guide* and follow the instructions given. If the fault does not clear, use this procedure.

Constantly observe and look up system messages as you perform this procedure.

You may need to replace:

- Ringing Generator: NTMW11 power supply
- Peripheral Equipment (PE) circuit card
- Telephone
- Wiring to the telephone

Possible cause	Action
Defective telephone	If only one telephone is affected, replace it. If there is still a telephone problem, go to the next possible cause.
Defective wiring	If only one telephone is affected, make sure wiring is properly connected and wires are not interchanged, crossed, or grounded. Check the wiring between the telephone and the cross-connect terminal. Check the wiring between the PE shelf and the cross-connect terminal. If there is a wiring problem, correct it. If there is still a telephone problem, go to the next possible cause.
—continued—	

Possible cause	Action
Defective PE circuit card	Software disable the telephone TN by entering LD 32 DISU c u (“c u” represents card and unit number) Disconnect wiring between the PE circuit card and the cross-connect terminal. Re-enable and test the TN by entering ENLU c u Wait for an OVD message. If you receive a message indicating a problem with the circuit card or unit, replace the circuit card. If you do not receive a message indicating a problem with the circuit card or unit, reconnect the wiring and go to the next possible cause.
Defective Ringing Generator	If several sets on different circuit cards in the same cabinet are affected, replace the NTMW11 power supply in the cabinet.

Final maintenance procedure

Refer to [Procedure 82](#) and perform the final maintenance procedure to verify that the Meridian 1 Option 11C Compact is operating properly and there are no remaining faults.

Procedure 82

Final maintenance procedure

- 1 Make sure all circuit cards that may have been removed are reinserted in their assigned location and enabled.
- 2 Make sure all wiring and connectors that may have been disconnected are reconnected.
- 3 Make sure all circuit cards and units that should be enabled are enabled. Digital telephones on a circuit card that was disabled may not be restored when the card is enabled. Each telephone should be individually disabled and re-enabled through **LD 32** (commands **DISU c u** to disable and **ENLU c u** to enable, where "c" and "u" are the circuit card and unit numbers). Service may also be restored by disconnecting and reconnecting the telephone line cord.
- 4 Make sure all circuit breakers are set to ON and any fuses (in power panels or auxiliary equipment) are inserted.
- 5 Clear fault indicators by entering **LD 135**

To clear a major alarm indication and restore Power Fail Transfer Units (PFTUs) to normal operation, enter
CMAJ

To clear all minor alarm indications, enter
CMIN ALL
- 6 Set the midnight routine to run after you log out of the system by entering
MIDN

End the session in LD 135 and log out of the system

LOGO
(the midnight routine will now run)
- 7 Check system messages produced when the midnight routine runs. Clear any faults indicated.

- 8 If there was a sysload (SYSLOAD) while you were clearing a fault, reset the correct time and date by entering
LD 2
STAD (day) (month) (year) (hour) (minute) (second)
Check the time and date you entered
TTAD
End the session in LD 2 and log out of the system

LOGO
- 9 Replace any covers that were removed.
- 10 Tag defective equipment with a description of the fault and return it to a repair center.

End of Procedure

Meridian

Option 11C Compact

Planning, Installation and Fault Clearing Guide

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About this guide

This guide contains three types of information related to the Meridian 1 Option 11C Compact system:

- Planning
- Installation
- Fault Clearing

Planning

The planning portion of this guide describes the features, limits and general design of the Meridian 1 Option 11C Compact system.

Installation

The installation portion of this guide describes how to install a new Option 11C Compact system, how to add components to an existing system and how to upgrade software if required (such as how to add TNs or change feature sets).

Fault Clearing

The Fault Clearing portion of this guide describes how to locate and clear faults in the system.

Detailed technical information is contained in the Option 11C Compact *Technical Reference Guide*.

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Option 11C Compact

Planning, Installation and Fault Clearing Guide

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